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TAMPERE UNIVERSITY OF TECHNOLOGY

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EMERGING AND EXISTING BUSINESS POTENTIAL BETWEEN SAINT PETERSBURG AND HELSINKI AIRLINE HUB

Master's thesis

Examiner: professor Jorma Mäntynen
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ABSTRACT

MARKUS KAUPPINEN: Emerging and existing business potential between St. Petersburg and Helsinki airline hub
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The objective of this paper was to identify emerging and existing business potential between the city of Saint Petersburg and Helsinki airline hub. The aim was to track down ways to attract customers from Saint Petersburg to travel through Helsinki to Europe, North America and Asia. The primary tasks of the present thesis were creating strategic and action proposals, identifying the most promising routes, identifying the current competitive situation, and finding the key attributes of attracting customers from Saint Petersburg.

The study is based on a new network theory, which identifies factors functioning within networks, the competition between airports and competition between airlines. The theoretical part of the thesis was written on the basis of existing literature. The empirical part of the study consists of an airline and airport choice – questionnaire, which was presented to people living in Saint Petersburg, an airport network analysis, and an airline alliance analysis.

Based on the theory and the empirical part of the study, strategic and action proposals were created, the most promising routes and the current competitive situation were identified, and key attributes for attracting customers were discovered.

The following main strategic and action proposals for Helsinki Airport were made: reviewing ownership, developing the check-in and security control procedures, developing the Allegro connection, improving the connections between the airport and the city center as well as connections to other cities, establishing new routes and opening a 24/7 cargo terminal.

The most important strategic and action proposals for Finnair were: e-marketing and marketing schedules, renewing the price policy and attracting new customers, developing the Allegro connection, re-scheduling the flight times from Saint Petersburg, co-operating with travel agencies, establishing new routes, and also creating a change in home market thinking and the travel chain services.

TIIVISTELMÄ

MARKUS KAUPPINEN: Nouseva ja olemassa oleva liiketoimintapotentiaali Pietarin ja Helsingin lentoaseman välillä
Tampereen teknillinen yliopisto
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Avainsanat: lentoliikenne, lentoasema, lentoyhtiö, liiketoimintapotentiaali, Helsinki, Pietari, Finnair

Työn tavoitteena oli tunnistaa nousevaa ja olemassa olevaa liiketoimintapotentiaalia Pietarin ja Helsingin lentoaseman välillä. Tehtävänä oli löytää keinoja, kuinka voidaan lisätä pietarilaisten matkustamista Helsingin kautta Eurooppaan, Pohjois-Amerikkaan ja Aasiaan. Strategisten ja käytännön toimintaehdotusten luominen, vallitsevan kilpailutilanteen ja potentiaalisten reittien tunnistaminen ja pietarilaisten lentoliikenteen mieltymysten tunnistaminen olivat avainasemassa työssä.

Työn yläteoriana toimii uusi verkostoteoria, joka luo pohjaa verkostojen ja niiden toiminnan ymmärtämiselle. Muu teoria työhön kerättiin olemassa olevasta kirjallisuudesta. Teoriat käsittelevät lentoasemien ja lentoyhtiöiden välistä kilpailua ja niiden kilpailutekijöitä. Työn empiirinen osuus toteutettiin kyselyllä lentoyhtiön ja lentoaseman valintaan vaikuttavista tekijöistä. Kysely toteutettiin venäjäksi ja se lähetettiin pietarilaisille. Lentokenttäverkoston kilpailutilannetta analysoitiin lentoaikataulu analyysilla ja lentoyhtiöallianssien välistä kilpailua reittianalyysilla.

Teoriaan ja empiiriseen osuuteen perustuen, luotiin strategiset ja käytännön toimenpideehdotukset, tunnistettiin vallitseva kilpailutilanne ja potentiaaliset reitit sekä kartoitettiin tärkeimmät tekijät lentoyhtiön ja lentoaseman valinnassa.

Helsinki-Vantaan lentokentän tärkeimmät kehityskohteet olivat: omistajuuden uudelleen tarkastelu, check-in ja turvatarkastuksen menetelmien kehittäminen, Allegro –yhteyden kehittäminen, lentoaseman ja kaupungin keskustan yhteyksien kehittäminen, maayhteyksien kehittäminen muihin kaupunkeihin, uusien reittien avaaminen sekä 24/7 toiminnassa olevan rahtiterminaalin avaaminen.

Finnairille tärkeimpiä kehityskohteita olivat: markkinointiaikojen ja –kanavien kohdistaminen, hinnoittelu- ja palvelupolitiikka uusien asiakkaiden houkuttelemiseksi, Allegro –yhteyden kehittäminen, Pietarista saapuvien lentojen uudelleen allokointi, yhteistyön lisääminen pietarilaisten matkatoimistojen kanssa, uusien reittien avaaminen, kotimarkkina-ajattelun muuttaminen sekä koko matkaketjua koskevien palvelujen tarjoaminen.

PREFACE

I would like to thank Devlog Forum and Finnair for giving me this opportunity to write my thesis on an extremely fascinating subject. My gratitude goes especially to my supervising professor Jorma Mäntynen, Jani Von Zansen and Aleksi Kukkarinen from Devlog Forum, and Hubertus Hessel from Finnair. Your guidance, ideas and opinions played a key part in my succeeding to write this thesis.

However, my biggest appreciation goes to my parents Tuija and Erkki. Thank you for everything you have done for me. Without your support and great advice throughout my life I would not be in this position now.

I would also like to thank my girlfriend Helena, who has supported me through the whole project and has dragged me out of my house every once in a while.

In Tampere, 14.12.2015

Markus Kauppinen

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LIST OF SYMBOLS AND ABBREVIATIONS

AWA	Airline within airline
FSC	Full service carrier
HSR	High-speed rail
LCC	Low cost carrier

1. INTRODUCTION

The liberalization of aviation industry around the world has made the operational environment more global and turbulent than ever before. The competition has got fiercer, and, in order to maintain their competitive advantage and market share, airlines and airports must develop their business continuously. Especially new forms of airlines, like low-cost carriers, have increased the competition for traditional network carriers (Pels 2009, p. 83).

The demand for air transport has increased significantly faster than the call for most other goods and services in the world. The demand will continue growing in the future due to the expansion of the middle-income classes in Asia-Pacific and the emerging economies in Latin America, the Middle East, North Africa and Sub-Saharan Africa. (Pearce 2013)

Even though the main strategic focus of Finnair and Helsinki Airport is transfer traffic between Asia and Europe, other markets should be continuously examined. The geographical closeness, Finland's sized population and good purchasing power makes the city of Saint Petersburg, Russia a good opportunity for both operators. Utilizing the city's potential could strengthen both operators' home markets and create a more stable environment for them in their process of increasing the transfer traffic.

Increasing transit traffic through Helsinki airport, carried out by Finnair, has positive effects. Utilizing the emerging business potential may open new markets for the airline, which gives it a competitive advantage in the industry. It allows the airline to offer a wider range of services and alternatives for the customer and in that way to improve customer satisfaction. Positive development in customer satisfaction creates loyal, long-term customers, which can be turned into higher revenues. New investments are possible due to profit increase, which, consequently, develops the company and allows it competitive advantage.

1.1 Network theory

Both airports and airlines create a network. To be more precise, they create scale-free networks. In networks, there are nodes and connections between the nodes. Not all the nodes are the same size. In aviation, there are bigger airports that have more connections than other airports and airlines that fly more routes than others. The airports with the most connections are called hubs, and the smaller ones are called spokes.

The different size of the operators creates a scale-free network. The scale-free network follows a power law, where there is one major hub with the most connections, followed

by few hubs of almost the same size. (Barabasi 2002) The size of the hubs follows the power law and, accordingly, it decreases dramatically. Figure 1 presents the power law and the size distribution of the airports and airlines.

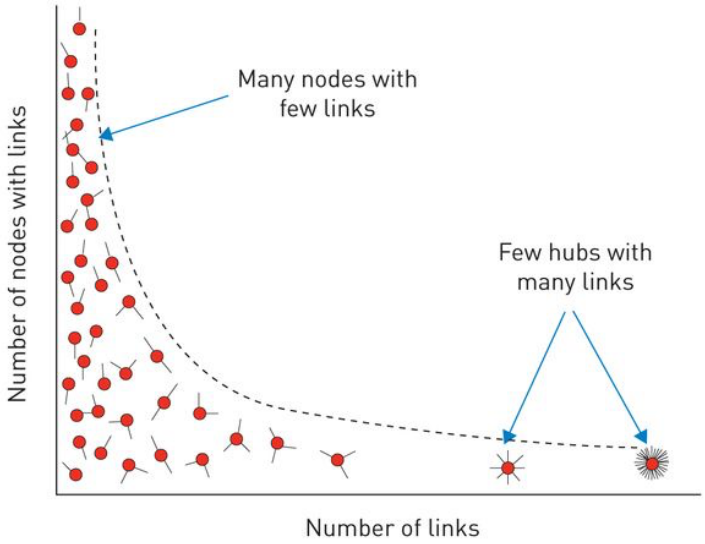

Figure 1: *Demonstration of a scale-free network (Barabasi 20020)*

As shown in Figure 1, there are few hubs, which hoard the most connections. The biggest hubs and airlines are the poles of the networks, and they are playing an important role in the whole network. The essential questions are, why some airports and airlines have considerably more connections than others in the network, and what forces lie behind that.

Barabasi A.-L. (2002) has studied the behavior of different kinds of networks in his book *LINKED. The new science of networks*. He found out that in scale-free networks, nodes that have more connections than others are more likely to make new connections. Thus, the amount of previous connections has an impact on the node's capability to attract new connections. This kind of behavior in networks is called preferential attachment.

So how can nodes that are new in the market and do not have previous connections become important hubs in a relatively short time, like Google and Dubai airport has done. In a competitive environment every node has competitive fitness, which refers to the node's rate of attraction. Different nodes have different rates of attraction and that explains how some nodes are more likely to create new connections than others. The higher the rate of attraction is the more tempting the node is for connections.

In this paper, selected airports' numbers of connections are examined using timetable analysis. The more connections there are between two airports, the more important that route is in that network. The competitive fitness attributes for airports are identified on the basis of existing literature. In addition, a questionnaire was presented to people from Saint Petersburg, in order to find out the most important competitive fitness attributes for

a certain customer segment. Based on these studies, the purpose is to identify the role of Helsinki airport role in the network, create tools to increase its rate of attraction for citizens from Saint Petersburg.

The Airlines' role in the network is examined through their airline alliances. Alliances' routes are viewed in certain airport-airport pairs. This analysis is not as exact as for airports due to the fact that airlines' importance in the network is in relation to the importance of the airport that they use as a main hub. For airlines, it is also examined what kind of actions are taken to create competitive advantage. The questionnaire focuses on finding out the most important airline choice attributes in order to increase the rate of attraction and on ways of increasing the airline's importance in the network.

There are previous studies in aviation based on the network theory. For example Lin (2012) studied China's aviation spatial structure, Paleari et al. (2010), focused on airport connectivity in China, Europe and USA and also on which airports provided the best service level for customers based on connectivity, and Kincaid (2003) investigated scale-free graphs for general aviation flight schedules.

1.2 Aim of the research and research questions

The objective of the present study is to outline a business development strategy and action plan to capitalize and attract new business opportunities of Helsinki Hub and St. Petersburg. Another aim is to identify and target other modes of transportation in order to increase transit traffic from St. Petersburg via Helsinki airport. The key purpose of the thesis is finding ways to attract people from St. Petersburg to travel through Helsinki by using Finnair.

The main research question in the study is:

What kind of strategic actions must Finnair and Helsinki Airport take in order to increase international outbound traffic from St. Petersburg to Europe, Asia and North America via Helsinki airline hub?

The sub research questions are*:*

What is the current competitive situation in the market?
Which routes are the most promising?
What are the key attributes for attracting customers from Saint Petersburg?

No previous studies were made from this point of view. Earlier research mainly focuses on airline and airport competition. In the following, the results of these earlier studies are used as material in identifying competitive fitness attributes and adducing the most common features for competition in both fields.

1.3 Content and limitations

The research mainly focuses on outbound and passenger travel from Saint Petersburg. Inbound traffic and cargo transportation are left out in order to keep the thesis within size limitations. The progress and subjects of the paper are presented in Figure 2.

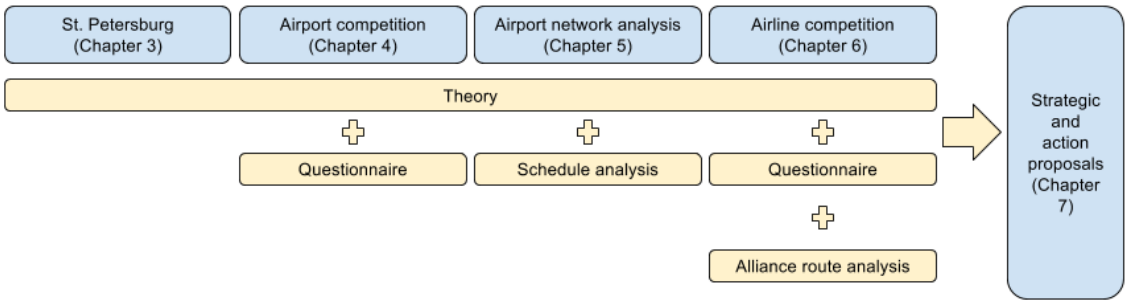

Figure 2: Progress and subjects of the research.

Section 1 consists of the introduction, the network theory, which is the main theory in the work, and the content and limitations of the work. Section 2 presents the research methodology. Section 3 introduces Saint Petersburg, its transport connections and tourism, and Section 4 views airport competition and the competitive forces in the industry. The examination is based on existing literature. The question of airport choice is studied based on the results of a questionnaire. In Section 5 on airport network analysis, the selected airports' part in the network is considered from the point of view of Saint Petersburg airport Pulkovo. The network between selected airports and destinations is examined. Section 6 covers forms of airline competition in the global markets. It also includes the results of an airline choice –questionnaire, and an alliance route analysis. In conclusion, Section 7 consists from the strategic and action proposals for what should be done in order to capitalize the business potential.

2. RESEARCH METHODOLOGY

This research is based on pragmatism. Pragmatism is a scientific philosophy which emphasizes the practical nature of information (Jyväskylän Yliopisto 2015). The scientific approach was selected owing to the practical nature of this research. Examining a city's potential requires numerous empirical studies, and the results need to be implemented in real life.

The study applies the network theory, which is more precisely presented in section 1.1. The analysis of the network and the identification of competitive fitness attributes are based on the network theory. The theory for airline and airport competition relies on existing literature. A journal of air transport management was employed in researching the existing literature. Also additional sources were used, especially Google Scholar. The sources referred to were also estimated by their trustworthiness at the time of their selection. Moreover, for want of scientific sources, a few non-scientific publications had to be used in some parts of the thesis. For example, Section 3 contains non-scientific references.

The empirical part of the research consists of three different parts: airport and airline choice –questionnaire, airport route network analysis and an alliance route analysis. The airport and airline choice –questionnaire was presented to people living in Saint Petersburg. It was presented in Russian. Appendix A presents the English version of the questionnaire. The questionnaire was semi-structured and standardized. There were 7 questions that defined demographic factors, 7 questions that surveyed behavioral aspects, 29 questions that asked for a valuation of different airline choice attributes, and 19 questions that elicited a valuation of different airport choice attributes from the respondents. The valuation questions were also categorized and the closer categorization can be seen in Appendix A. Part of the airline choice attributes were taken from Chen & Chao (2015) and the others were created in co-operation with the personnel of Finnair and Professor Mäntynen. Some of the airport choice attributes were taken from Bezerra & Gomes (2015) and the others were created in co-operation with the personnel of Finnair and Professor Mäntynen. The same questions were presented to all respondents.

The problem with the questionnaire is the fact that if the respondents understand the question in a different way than the questioner, it may distort the results. Due to the absence of a communication channel between the respondents and the questioner, the questions must be as simple as possible. (Hiltunen 2009) The questionnaire was also made fast to fill in, because according to Hiltunen (2009) quick questionnaires gather more respondents.

The questionnaire was created by using a free online survey tool Typeform. It was distributed to respondents through Finnish Saint Petersburg club, Finland's consulate in

Saint Petersburg, Saint Petersburg's Polytechnic University, Facebook and the personal connections of the writer of the thesis. From the 211 unique visits in the questionnaire 133 answered, making the response rate 63%. The average time of filling in the questionnaire was eight minutes and twelve seconds. From the 133 respondents, 82% were women and 12% men. A closer demographic distribution is presented in Table 1.

Table 1**: **Distribution of demographic factors in the questionnaire

Age		
30 years or younger: 51%	31-50 years old: 46%	51 years or older: 3%
Monthly income		
35000 rubles or less: 28%	35000-65000 rubles: 39%	65000 rubles: 33%
Occupation sector		
Public: 30%	Private: 53%	Student: 11% Other: 6%
Languages spoken		
Russian: 98%	English: 80%	Others: 22%
Frequency of international flights		
Once a year: 37%	2-5 times a year: 59%	6 times or more a year: 4%
Frequency of domestic flights		
Once a year: 67%	2-5 times a year: 25%	6 times or more a year: 8%
Purpose of travel		
Flying for leisure: 89%	Flying for business: 30%	Visiting friends and relatives: 43%

There were three groups that had only a few respondents. There were not many people who were 51 years or older and who traveled six or more times yearly on domestic or international flights. The number of these respondents is not big enough to create a sweeping analysis, and that is why results from these groups should be viewed with skepticism. Moreover, the uneven distribution of women and men respondents may distort the analysis. The results were analyzed by using Microsoft Excel and its add-inns Power Pivot

and Power View.

The network route analysis for airports was made by using information gathered from Skyscanner and Google Flights. There were no real passenger data available, on which it would have been possible to analyze the utilization rate of the routes. Flight amounts per day and their departure and arrival times were viewed during a three-month period for every route. There was some differentiation on departure and arrival times. On the whole, the objective was to mark the most-used departure and arrival times.

The airline alliance route analysis was carried out by using Google Flights. All the routes were checked from the service and if there was no visible connection in Google Flights, the information was checked from Skyscanner and from the alliance's website.

3. SAINT PETERSBURG

St. Petersburg is located on the eastern shore of the Baltic Sea in Northwestern Russia. St. Petersburg's population is 5,2 million habitants, and it is the country's second biggest city after Moscow. It is the most northern city in the world with a population over one million. (Saint-Petersburg.com)

St. Petersburg is the governmental center of Leningrad region. In Leningrad region, if St. Petersburg is excluded, live 1,7 million people. The biggest cities in Leningrad region are Gatšina, Vyborg and Sosnovyi Bor. (Leningrad Region official website 2015) The total of St. Petersburg's and Leningrad region's population is 6,9 million inhabitants. Pulkovo airport in St. Petersburg has a catchment area of 9 million people from St. Petersburg, Leningrad region and 2.4 million people living in the neighboring Vologda, Petrozavodsk, and Pskov regions (Pulkovo.ru 2015). Figure 3 presents the location of St. Petersburg, Helsinki and Leningrad region.

Figure 3: Helsinki, St. Petersburg and Leningrad region.

Out of the the 5,2 million inhabitants in St. Petersburg, 45,4% are men and 54,6% are women. The average age in 2014 was 41,2 years. 2,9 million are economically active and

the employment rate is 98,6%. The five biggest national production sectors were wholesale and retail, real estate business, manufacturing, education and transportation, in respective order. The average salary in July 2015 was 43 000 rubles. (Petrostat 2015) Chart 1shows the division of production sectors.

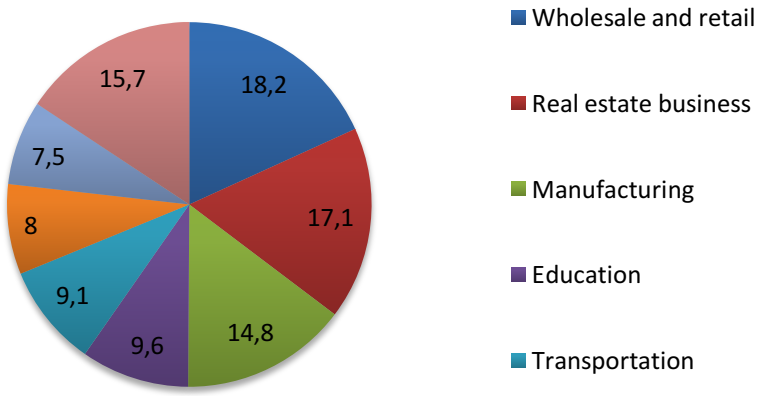

Chart 1: St. Petersburg's national production sectors. (Petrostat 2015)

St. Petersburg is an important industrial city in Russia. The economical situation in Russia has influenced the city's industrial production. In 2014, the industrial production was 98,8% of the level of 2012. The industrial production has been volatile, and there has been a regularity of a decline in industrial production once in three–four years. (Rybakov 2014)

The major industries in St. Petersburg are food industry, shipbuilding, pharmaceuticals, car industry and machine and heavy machinery building (Rybakov 2014). The import and export of St. Petersburg between January and June in 2015 are presented in Chart 2.

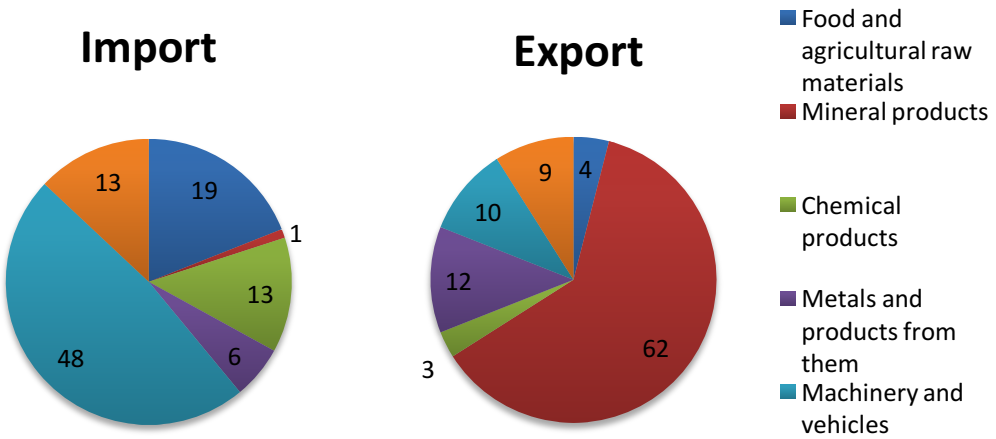

Chart 2: Import and export of St. Petersburg between January and June in 2015 (Petrostat 2015)

The biggest import products were machinery and vehicles, and food and agricultural raw materials. The biggest export products were mineral products and metals.

3.1 Tourism

Saint Petersburg is the cultural capital of Russia. Western influences have shaped the cultural life and origins of the city. The city has beautiful architecture and many world-class museums, theatres and art exhibitions and that is why it is the most popular tourist destination in Russia. (Trumbull 2013)

The number of tourists and visitors visiting the city varies according to the calculation method. There is no clear data from the number of visitors, and that defect has been criticized (Travel Russian News 2014). Approximately 5-6 million people visited Saint Petersburg in 2014 (Baltic Cruise Association 2015; St. Petersburg Essential Guide 2015). Based on the calculations by Russian Government investment, from the 5,5 million people visiting St. Petersburg in 2014, 2,6 million were foreign travellers, and 2,9 million were Russians (St. Petersburg Essential Guide 2015).

The current crisis in Ukraine and the political situation in Russia has had its impact on tourism to Russia and to Saint Petersburg. Officials say that the flow of visitors has decreased due to the beliefs and fears of foreign travellers. The situation is seen only as temporary and there is a strong belief that the situation will return to normal in near future. (Telegraph 2014; Russia Beyond The Headlines 2014)

There are no closer inbound tourism analyses from Saint Petersburg. In 2013, approximately 25 million foreign tourists visited Russia, Moscow and Saint Petersburg being the most popular cities. The amount of tourists visiting Russia has increased steadily over the past 20 years. Most of the tourists come from Europe. In 2010, 88% of the tourists came from Europe, 6% from East Asia and Pacific, and 6% from rest of the world. Most of the inbound tourists from Europe are from the neighboring countries. In 2010, 16 million tourists came from the Central Eastern Europe countries, 5,5 million from Ukraine, 2,7 million from Kazakhstan and 1,5 million from Uzbekistan. The rest came from other European countries: 1 million from Finland, 0,6 million from Germany, 0,2 million from United Kingdom, France, Turkey and Italy. Tourists arriving by air represent a minority compared to those using other means of transportation. The reason for this is the dominance of people coming from the neighboring countries. The former Soviet countries have good rail and road connections to Russia. (NeTour 2014) The data applied in the present study is from the whole of Russia, and thus it is not directly proportional to Saint Petersburg.

For outbound traveling, there is also no individual data from Saint Petersburg. In 2010, a bit fewer than 26 million Russians traveled abroad. The most popular destination was Ukraine. The popularity can be explained by the geographical proximity, good climate,

opportunity of visiting friends and relatives, same language and visa free traveling. The share of the most popular destinations in 2010 was: Ukraine 31%, Turkey 12%, Egypt 11%, China 9%, Kazakhstan 5% and rest of the world 32%. From the most popular destinations, Turkey and Egypt are only accessible by plane. (NeTour 2014)

The crisis has had its impact on where Russians are traveling. The weakening ruble has raised the cost of foreign travel and cut Russians' real wages by nearly 10 percent compared to 2014. The Russian tourists, who are known as heavy spenders on their holidays, are spending less money. Destinations in Europe have suffered most, but Turkey and Egypt are rising in popularity. The close connections between Turkey and Egypt and Russian tour operators and the high level of all-inclusive holidays in these destinations are the reasons why these two are more and more popular. At the moment, Russians are not willing to risk an accumulation of last-minute expenses, but they rather choose all-inclusive holidays. (The Moscow Times 2015)

Specialties in Russian outbound tourism

Russian tourists book their trips very late: 80% holidays are sold only four weeks before the departure. Cash is the most-used method of payment and, accordingly, 72% of tourists pay for their holiday in cash. Branded hotels and all-inclusive trips are popular and destinations with spas, sports facilities and culinary delights are increasing their demand. (Eventica Communications 2010)

The key customer segments in Russian outbound travel are the ultra wealthy, young professionals and emerging middle-class families. The ultra wealthy customers make multiple trips per annum, and they are time and cash rich. They are also difficult to reach by marketing and promotions, and they are rarely using tour operators. For the young professionals, travel is no longer a luxury but an important part of their lifestyles. Foreign holidays have become a status symbol. People are also going on weekend trips. New destinations are popular among young professionals. The emerging middle-class families take one or two trips per annum. They often travel to be in the sun and choose beach destinations and/or visa-free destinations, and also book their trips at the last minute. Due to the financial crisis, middle-class families are trying to spend less, and they are trying to seek different kinds of offers. (Eventica Communications 2010)

The Russian tourism market is extremely fragmented, and it has a large number of very small companies. Over 70% of tour companies are small and medium sized. The biggest tour agency is Intourist and other big tour operators are Russkiy Express, Lanta Tour Voy-age, Coral Travel, Uzniy Krest, KMP Group and Natali Tours. The largest flight retailers are Intourist, S7 Tour, Capital Tour and Transaero Tours Centre. Most of the biggest operators work with Aeroflot and Transaero airlines but for example, S7 Tour has its own internal airline services. (Eventica Communications 2010)

The most popular travel dates in Russia are between New Year and Old Russian New Year, Russian Orthodox Easter, May holidays, summer holidays and the first week of November. The holiday between New Year and Old Russian New Year is between 31st of December and 9th of January, when Russians have an 11- day vacation. The date of the Russian Orthodox Easter depends on the year, but it is not often at the same time as western Easter. May holidays are spent from 1st of May to 9th of May. Russian schools are on holiday from 1st of June until 1st of September. August is the most popular time for the family holidays. (Eventica Communications 2010)

3.2 Connections

3.2.1 Trains

Saint Petersburg is reachable by many means of transportation. The city is reachable by car, bus, train, ship or plane. There are five main railway stations in Saint Petersburg: Moscow Station, Vitebsk Station, Ladoga Station, Finland Station and Baltic Station.

The Moscow station is located at the city center at Ploshad Vosstaniya. From Moscow station it is possible to travel to Moscow, Novgorod, North of Russia, Urals, South of Russia, Central Asia to Kazakhstan, Uzbekistan, Turkmenistan, Caucasus to Azerbaijan, Armenia, Georgia and to Crimea. There are many trains to Moscow and they depart almost in every 20 minutes. (Way to Russia 2015) The normal train between St. Petersburg and Moscow takes 8 hours but there are also high-speed trains, Sapsans. The Sapsan has a top speed of 250 kilometers per hour and the trip takes approximately four hours between Saint Petersburg and Moscow. There are ten daily high-speed train departures in Moscow Station. (RZD 2013)

From Vitebsk Station, it is possible to travel to Eastern European countries and take suburban trains to Pushkin and to Pavlovsk. From Vitebsk Station there are straight connections to Ukraine to Kiev and Odessa, to Belorussia to Minsk and Brest to Moldavia, Central Europe, Novgorod and Smolensk. There are no high-speed trains from Vitebsk Station. (Way to Russia 2015)

From Ladoga Station it is possible to travel to cities in Russia, Kazakhstan and to Helsinki. The destinations from Ladoga Station are: Arkhangelsk, Astana, Babaevo, Chelyabinsk, Ekaterinburg, Helsinki, Karaganda, Kostomuksha, Murmansk, Pestovo, Petrozavodsk, Pitkyaranta, Syktyvkar, Vologda and Vorkuta. (Way to Russia 2015)

From Finland Station depart a few regional trains and also high-speed train, Allegro, which operates between Saint Petersburg and Helsinki. Also the Lev Tolstoy train, which operates between Helsinki and Moscow, passes through Finland and Ladoga stations. (Way to Russia 2015) Allegro has four daily departures from Helsinki and from Saint Petersburg. From Helsinki the trains leave at 06.12, 10.00, 15.00 and at 19.00, and from

Saint Petersburg at 06.40, 11.25, 15.25 and at 20.25. The travelling time is 3 hours and 36 minutes and train's top speed is 220 kilometers per hour. The train stops at Pasila, Tikkurila, Lahti Kouvola, border station in Vainikkala and in Vyborg. The fastest way from Saint Petersburg to Helsinki airport by train is to take the train from Saint Petersburg to Tikkurila and change to a commuter train in Tikkurila, which goes to the airport. The travelling time from Tikkurila to the airport is seven minutes, and it is possible to buy both trips at the same time. It is also a possible to buy a combined ticket from Finnair, which includes the flight and the train ticket. In the combined ticket the minimum changing time between the train and flight is 2 hours and 45 minutes. (Finnair 2014)

3.2.2 Buses

In St. Petersburg there is one main bus station and it is located near Obvodnoii Kanal metro station. The local and intercity buses depart from that station. In Baliyskaya metro station there is a bus terminal for LUX Express, which operates buses to Estonia, Helsinki and to Riga. LUX Express drives between St. Petersburg and Helsinki three times a day, and the duration is approximately 7 hours and 30 minutes. The tickets are cheap and the prices start from 16 euros. There are also dozens of firms that offer minibuses between Saint Petersburg and Helsinki. Minibuses depart in the evening, between 21.00 - 23.00 or early in the morning.

3.2.3 Ferries

It is also possible to travel from Saint Petersburg to Helsinki and to Stockholm by ferry. The ferry leaves from St. Petersburg at 19.00 and arrives in Helsinki at 08.00. The cheapest ticket costs 25 euros. The ferry to Stockholm operates twice a week and the estimated travel time is 25 hours. (St. Peter Line 2015)

By car, the distance between the center of Saint Petersburg and Helsinki airport is 382 kilometers. Based on the Google Maps estimation, the travelling time is 4 hours and 18 minutes. The estimations do not consider the influence of traffic or the time spent at the border. In real life, the travelling time will be longer.

3.3 Marketing in Russia

During the last decade, Russian consumers have gone through several development stages:

- 2004-2008 – Consumers got new option to pay for desired goods and services with consumer cards. Before this, consumers used to save money for years. This changed especially the purchasing of long-lasting products (household appliances, cars, etc.)

- 2008-2010 – The economic crisis led to the reduction of purchasing power and income saving. The consumers become more rational, and price was the most important attribute.
- 20011 - early 2013 – Increase in the purchasing of long-lasting products driven by deferred demand. Born of a reasonable buyer model.
- 2013-2014 – Growing concern driven by the economic decline, paying capacity reduction, controlled expenses and political cataclysms. This has resulted in a lack of emotions, and a desire to compensate it by visiting shopping malls, parks and entertainment sites. Consumers are looking for entertainment and feel wish to be happy. (Tekes 2014)

At the moment, Russian consumers may be conditionally divided into three groups:

- Qualified consumers (10%),
- New market experience chasers (40%),
- Conservative consumers following patterns of 1980-1990s (50%) (Tekes 2014)

It is important to notice that the last two groups account for 90% from all of the consumers.

Table 2: Russian consumer groups (Tekes 2014)

Consumer	**Role**
Qualified consumers	Experiential engagers Live wire (modern active person)
New market experience chasers	Curious buyer ,Value chasers, Trend follower, Impulse followers, Careful mother and wife, Brand lover
Conservative consumers following patterns of 1980-1990s	Brand lover, Careful mother and wife, Impulse followers

The outlined groups are within the scope of marketing classification of consumers: trend setters, trend followers and those who go against trends. The pyramid of needs for consumers is presented in Table 3 and the consumer motive is presented in Table 4.

Table 3: Pyramid of needs for Russian consumers (Tekes 2014)

Need	**Role**
Self- Actualization	Experiential engagers
Aesthetic	Live wire (modern active person)
Cognition	Curious buyer Value chasers
Esteem	Trend follower Impulse followers

Love\ belonging	Brand lover
Safety	Careful mother and wife
Physiological	Careful mother and wife

Table 4: Consumer motive for Russian consumers. (Tekes 2014)

Motive	**Role**
Safety	Careful mother and wife
Social	Brand lover, Trend follower, Impulse followers
Superiority	Live wire (modern active person), Value chasers
Discover	Experiential engagers, Curious buyer

Based on the categorization of needs and motives, it is possible to create an appropriate marketing campaign for each customer group and role.

Russians also address ambivalence towards foreign and domestic products and services. Foreign products and services are seen as high quality but at the same time Russians suspect foreigners of dumping inferior goods into Russia. Russians prefer local goods, especially foods and beverages, but at the same time doubt the quality of these same products. Non-Russian brands in Russia may be the most successful, when they operate in the higher quality category. (Forbes 2014)

Marketing channels

Traditional media are strong in Russia, and it is estimated that in 2015, Russia will be the fifth largest TV advertising market in the world. It is also indicated that the growth rates for offline advertising in Russia are double worldwide rates. (PWC 2011)

At the same time, Russians are adopting technology quickly. Russia is the largest internet marketing audience in the world and also the mobile phone penetration is among the highest in the world. (Forbes 2014) The use of the internet and social media in Russia differs from the western world. The most frequently used search engine is Yandex instead of Google. Yandex is used by 54% of Russian internet users and Google only by 34%. The same kind of differentiation is detected in the social media. Russia's equivalent for Facebook, VKontakte, has over 220 million registered users and it achieves 47 million visitors per day. Also the network for former classmates, Odnoklassniki, has 124 million users. Users of Facebook in Russia are often more highly educated, and they have good English skills. Many of them are businessmen or top managers. Facebook has 8,4 million users in Russia and similar to Facebook, Twitter is not a big hit in Russia and has only 5,3 million users. (Smart Insights 2015)

4. AIRPORT COMPETITION

Airports are a key link in the air transport journey chain, and therefore, play an important role in facilitating tourism, business travel and global supply chains. For incoming travelers, airports are the first things passengers see, and they are in a great role contributing the first impression of a city or country. For outbound travel, particularly on short-haul journeys, passengers may spend a great amount of time at the airport compared to the time spend on air. (Wittshire 2013) That is why the functions and infrastructure of the airports are important in order to attract passengers and airlines to the airport.

In recent years, airports have been benchmarking their own performance against other airports. One of the biggest questions in benchmarking is identifying the most suitable airports to be used as comparators. If unsuitable comparators are chosen, airports may set benchmarking targets that are unachievable. Commonly one-dimensional criteria, such as location, size or ownership, are used to group the airports, being often chosen for data availability or convenience reasons. However, research suggests that airport performance is influenced by a number of different factors, with no single one being dominant. (Vogel & Graham 2013)

There are several ways to classify and group airports, and new methods are created constantly. For example, Malighetti et al. (2008) groups airports into different clusters based on connectivity, Madas & Zografos (2008) based on slot allocation and Adikariwattage et al. (2012) based on passenger characteristics and terminal size. Broadly, five top factors are used to group airports:

- airport location,
- volume of traffic,
- nature of traffic and role of airport,
- congestion, utilisation and technical characteristics,
- ownership, organisation and regulation. (Vogel & Graham 2013)

In this paper, the classification is made from the scope of an airport's relation to St. Petersburg. Chosen airports are the most popular airports from the point of view of Pulkovo airport (Pulkovoairport.ru 2015). The airports are divided into different categories based on their hub relation to Pulkovo. The chosen airports and categorizations are presented in Table 5.

Table 5: Chosen airports and categorization

Airport	**Role**
Pulkovo	First airport
Frankfurt	Hub to Europe and North America
Paris	Hub to North America
Domodedovo	Hub to Asia
Sheremetyevo	Hub to Asia
Dubai	Hub to Middle East and Asia
Stockholm	Closest competitor to Helsinki-Vantaa
Helsinki-Vantaa	Research airport

Frankfurt is chosen as a hub to Europe and North America. It is the most popular foreign airport from the Pulkovo, and it has great connections to Europe and North America. Paris is also a popular foreign airport, and it is considered a hub to North America. Domodedovo and Sheremetyevo are the most popular airports from the Pulkovo airport. This is because they offer a large variety of domestic and international routes. Dubai is considered a hub to Middle East and Asia, and it is also a popular tourism destination among Russians. Stockholm is taken into research for its being the closest competitor to Helsinki-Vantaa.

There are many factors that influence competition between airports. The competitive factors between airports are presented in a Figure 4.

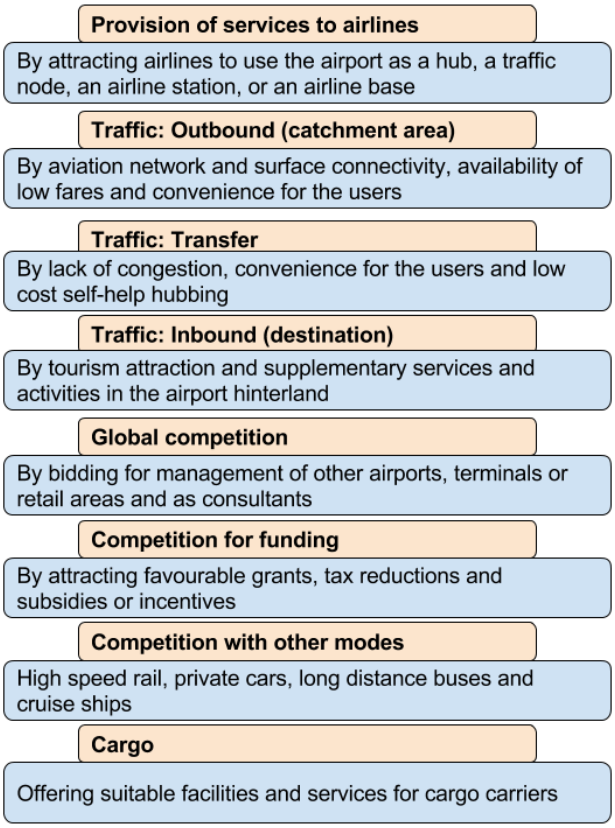

Figure 4**: **Competitive factors in airport business (modified from Jimenez et al. 2014)

There are eight recognized factors on which airports compete against each other. The factors are discussed more precisely in the next chapters.

4.1 Provision of services to airlines

Airports are competing with each other to attract and retain airlines. Airlines providing services at an airport provide aeronautical revenues and also attract passengers and cargo shippers. (Morrel 2010) The services and infrastructure provided to airlines by airports vary on what kinds of airlines are attracted, and what the type of the airport is. The characteristics of the airports should match the requirements of the airline according to the type of desired operation. Generally, airlines operate in an airport as its hub, a station, a base or a traffic node (Burghouwt 2007). Additions to these models new airport business models are emerging, and slow transition is happening. Few possible new models are presented in a Figure 5.

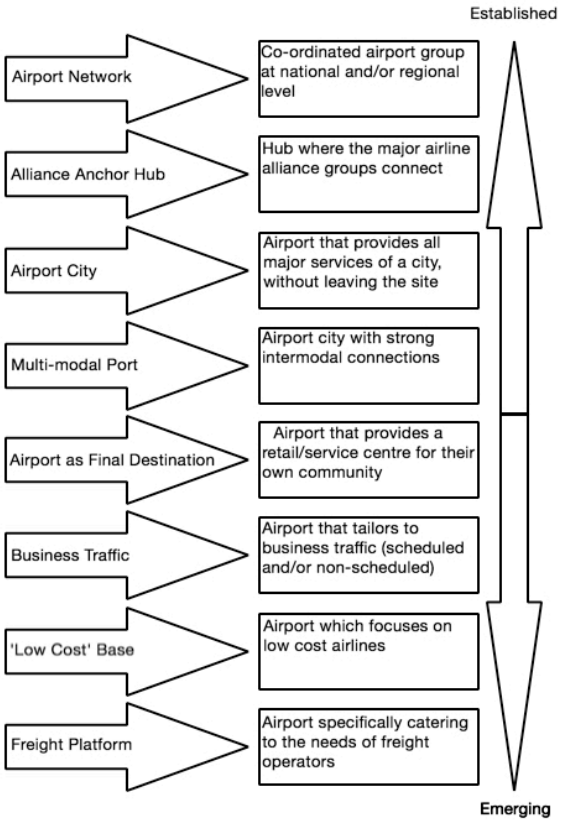

Figure 5: New business models for airports (Modified from ACI 2010)

These new models are more specific and involve tailor-made approaches to leverage each airport's unique market position and strengths. Through diversification and innovation, each airport is trying to secure their own competitive advantage by specializing into smaller segments. (ACI 2010) Even though new models are emerging, the basic idea behind airport's business model stays the same: The characteristics of the airport should match the requirements of the airline according to the type of wanted operation. For example, for a hub, peak capacity is a crucial factor; the attractiveness of the catchment area, in terms of potential demand, is very important for an airline station or a traffic node; airport fees and efficiency to guarantee quick turnaround times are paramount for LCCs, whilst FSCs (Full Service Carriers) may demand larger spaces and business lounges. (Jimenez et al. 2014)

4.2 Outbound traffic (catchment area)

Airports that share similar catchment areas compete for passenger demand within their zones of influence (Jimenez et al. 2014). The following factors determine an airport's ability to compete in this area: the network of destinations offered at the airport (especially non-stop connections); the fluency of connection to surface transportation that

gives access to the airport (Morrel 2010); the availability of low fares for the air tickets, quite relevant in the case of airports serving LCCs (Barbot 2006; Malighetti, Paleari, & Redondi 2009); and the convenience that the airport offers to some passengers in terms of location, total travel time or services offered (Barrett 2004).

4.2.1 The fluency of connection to surface transportation

An airport's services will always be used, both passenger and freight, with one or more sectors provided by other modes of transport. The other modes of transport are:

- Air to truck/taxi/car and vice versa;
- Air to rail/bus and vice versa;
- Air to air;
- Surface to surface is also possible

The competition between airports should be considered in terms of door-to-door service, time and price, rather than just from an airport to an airport basis. (Morrell 2010) Airports should be easily accessible by cars, which is especially important for cargo transportation. Furthermore, public connections to and from the airport need to be functional. There needs to be an adequate amount of connections to a sufficient amount of destinations and frequency of connections needs to be satisfying. Better access to airport, expands the airport's catchment area and enables airlines to compete in more origin-destination markets (Morrell 2010).

In 2007, economic consultancy group Frontier Economics made an empirical study to investigate how likely passengers are to choose a more distant airport over the closer one, and to consider the role of relative prices in that decision, when airports are having similar services. They found out that passengers prefer traveling from their local airport. They found out that for every 1% increase in distance, the likelihood of flying from that airport de-clines on average by 4%. In terms of price, the research stated that for every 1% increase in distance, a 1% change in relative prices would be needed to persuade passengers to travel to the more distant airport.

Johnson et al. (2014) studied how people choose between different kinds of flight at competing airports, and how their choices are affected by access conditions. The main focus was on how passengers would react to a situation where only connecting flights were offered from their home airport, and direct flights were offered from an alternative airport. The results revealed a strong aversion to connecting flights. Passengers were willing to accept higher air fares in return for direct flights. Moreover, there was a strong willingness to accept increased access time in return for a straight flight, sufficient to motivate to travel to the alternate airport, even without the presence of a high-speed rail option. Due to this study, the most popular indirect destinations from Pulkovo airport were chosen as destinations that other airports are able to compete with Pulkovo.

People are not willing to use more distant airport if the provided services between airports are same. However, when other airport is serving direct connections, the willingness to use more distant airport increases. When airports are connected with other modes of transportation, there is always the change of a vehicle. Often the change is experienced as a burden. Fluent change of transporter or mode of transportation can have a big impact on attractiveness of the travel chain. (Ojala 2003, p. 105) The change area should be designed so that it would minimize the burden, which results from the change (Riley et al. 2007, p. 30). With a careful infrastructural design and by working informative services can be influenced to easiness of changes. (Mild & Metsäranta 2013, p. 32) Fluency of changes is one of the most important factors at hubs, and at hub airports and that is why they should be developed constantly.

4.2.2 The availability of low fares for the air tickets

In the past few years, more and more secondary airports have been growing rapidly. Much of this growth has been due to the presence of LCCs. LCCs usually fly point to point between European towns and sometimes find it difficult to get suitable slots at large hub airports. Secondary and regional airports became attractive for LCCs. Free capacity is the main appealing attribute of regional airports for LCC's. There are a four reasons why this becomes an important advantage.

1) There are no problems with the availability of slots, allowing LCCs to design schedules to make the best use of their fleet.
2) Congestion is absent making it possible to follow schedules in time and avoid costs of delays.
3) Marginal costs are very low, or almost zero, and so aeronautical charges are also often low.
4) Infrastructures like check-in counters and handling systems were largely absent making it possible to design ones that are simple enough to fulfill LCC's needs of quick services. (Barbot 2006; Malighetti et al. 2009)

On the other hand, distances from secondary airports to the cities they serve, are longer than from the main airports. Passengers face longer surface journeys and only few secondary airports are connected by fast and frequent rail connections. Nevertheless, LCCs customers have a lower utility of time with their main focus being on price, unlike customers of full service carriers (FSCs). (Poungias 2003)

4.2.3 The convenience that the airport offers to some passengers in terms of location, total travel time or services offered

The convenience that airport offers to some passengers is also a factor that determines what airports are used by customers. Location, total travel time and services offered are important factors when passengers are choosing the airport.

The total travel time includes the travel time to airport, operation time at the airport and travel time from the airport to the destination. Ground connections to and from airports are important when surface journey times are measured. Furthermore, the infrastructure of the airports has an impact to the total travel time. For examples long walking distances at terminals, delays waiting for baggage, difficulties in transfer connection and congestion at airport terminals and on access routes may increase total travel time (Barrett 2004). The design of airport and its services are in important role, when total travel time is observed. Passengers may choose smaller airports if they feel that operations at airport take too much time (Barrett 2004).

Services offered at the airport are also important when passengers are choosing an airport. Especially when passengers spend longer times at the airport there need to be services to fulfill their needs and to prevent boredom at the airport. Airport service quality is found to have a direct or an indirect effect on value, satisfaction, airport image, and passenger behavior. Especially development of transfer passenger-focused services is needed to increase transfer passengers. Being unsuccessful in providing quality services to transfer passengers may damage the level of satisfaction, value perceptions, and the formation of airport image and cause negative impact on transfer passenger behavior. (Park & Se-Yeon 2011)

4.3 Transfer traffic

Competition for transfer traffic is also one of the widely recognized forms of airport competition. Airports and their airlines compete with each other for long-haul transfer traffic (Starkie 2002). This competition is dependent on the ability of the airports to attract airlines that extensively use hub and spoke network strategies. It is important for an airport to provide space and capacity for the airlines to grow using infrastructure that facilitates the transfer process. (Jimenez et al. 2014)

Other features may also enhance airport competitiveness in transfer traffic. For instance, a location of the airport is important. It should be located so that it serves airlines and passengers needs and minimizes detours. Design of the airport should minimize connecting time and shopping, and leisure facilities should increase the desirability of longer layovers. (Jimenez et al. 2014)

Airports can benefit from passengers' preference or loyalty to their frequent travel programs. Passengers may be more likely to use the transfer airport of their preferred carrier or alliance. (Jimenez et al. 2014)

The expansion of low-cost carriers has made it possible for also for the low-cost airports to compete for medium-haul transfer passengers- LCCs and low-cost airports benefit from the method of self-help hubbing. In self-help hubbing passengers use point-to-point

connections and create their own routes without a help of airlines or other service providers. (Burghouwt 2007) This is changing the competition in transfer traffic. Some low-cost carriers are starting to connect some of their flights, feeding other airlines and code sharing. For example, JetBlue has begun code sharing with Emirates in the US and Air Berlin with the Etihad. This trend has two sides. It allows hub airports and legacy carriers to capture the increasing number of passengers who are already self-help hubbing (O'Connell and Williams, 2005). This how traditional hub airports and legacy carriers could benefit from the growing trend of self-help hubbing. On the other hand, it allows for connecting more distant markets which each other. Price sensitive customers could use routes that have longer journey times and one part of the trip is flown by LCC. This how, customers may use airports as a hub that would not be ideal when measured by travel time or distance. (Fageda et al. 2015)

Competition between hubs for transfer passengers is apparent in the development and positioning. For example, Helsinki airport is working as a hub between Europe and Far East. The competition is still not confined to European airports. The development of hubs in Middle East and close by countries, like Turkey, means that the Far East, Australasia and The Americas can more easily bypass European Hubs. (Bush & Starkie 2014)

The arising competition threatens European airports and their hub carriers. That is why it is important that they can offer transfer products that can compete. Part of this revolves around the quality of the airline product, but the airport has a key role also. It needs to ensure that the transfer journey is as seamless as possible through a provision of information, airport signage and speedy processing, especially through security. In order to serve premium transfer products, airlines and airports need to work together, whether it is designing new facilities or in making improvements to what already exists. (Bush & Starkie 2014)

4.4 Inbound traffic (destination)

Airports can attract customers, thus competing with other airports, due to the attractiveness of the region that the airport is located or by the attractiveness of the airport itself. This kind of competition is called as a destination competition, and it usually occurs in large tourist areas that serve a considerable amount of inbound traffic. The attractiveness of the airport also impacts to the attractiveness of the destination. The quality, cost and scope of service offered are important factors when measured the attractiveness of the airport. When scope and frequency of air service to and from airport increases, so does the overall attractiveness of the destination served by the airport. (Tretheway & Kincaid 2010).

4.5 Global competition

Since the 1970s, major regulatory and structural developments have happened, which have affected both airline and airport industries. At first, airline industry experienced most of the change because of the airline deregulation, privatization and globalization trends. The change was slower in the airport industry, but now the sector has developed more rapidly. (Jimenez et al. 2014)

The deregulation of the industry has allowed the birth of new business models. For example the European deregulation, which came fully operational in 1997, allowed a large low-cost carrier industry to develop. Moreover, due to deregulation and privatization, the industry has globalized and new transnational airlines have born. Three major alliance groupings (Star, oneworld and SkyTeam) have emerged with global networks. These alliances are dominating the airline business, and they are responsible for over half of all traffic. Furthermore, airline joint ventures, and mergers are coming increasingly popular. (Graham 2013)

The changing environment has led airports to compete for the services they offer at a global scale, especially in terms of management and consulting services, or even directly acquiring other airports or parts thereof. Three key development sectors have been witnessed in the industry:

1. Airport commercialization
2. Airport privatization
3. Airport ownership diversification (Graham 2013)

Airports have become more commercialized and business like. Airports are changing from public utilities to commercial enterprises, and they are adopting more business-like management philosophy. (Graham 2013)

The management and ownership of airports are moving towards private sector in many cases. Varieties of methods are used, as share flotations, adoption of strategic partnerships and introduction of private management contracts. (Graham 2013)

In the industry, there is emerging number of different types of new investors and airport operators. For example, new kinds of financial investors and infrastructure companies, which have interests in a number of airports around the world, are being published. (Graham 2013)

The airport industry is moving, and for some parts has moved, from publicly owned entities, which were designed to serve nations into a new era of airport management where the private sector and international airport companies play a major role. Airports are versatile enterprises, and their management requires a wide range of business competencies and skills. Airports are no longer simply providers of infrastructure. The ideology has

moved towards more traditional business thinking where meeting the customers' needs is the most important thing. (Graham 2013)

4.6 Competition for funding

Operating an airport and keeping it competitive requires significant capital investments. Expansions and upgrades are needed in order to keep the airport competitive and in-crease its market power. Developing the airport requires capital investments. Fund can be in the form of grants or loans with special conditions, such as low interest rates or long payback periods, or in the form of tax reductions or subsidies. (Jimenez et al. 2014) Bel & Fageda (2009), state that competition is more evident in airports that belong to the same corporate group, and the competition is more significant if the company or enterprise, which owns the airport, is government owned. Private airports are also fighting for the right and possibilities to expand. For example, in London, airports are searching for new runway capacity (Jimenez et al. 2014).

4.7 Competition with other modes

Competition between air transport and other modes of transportation has also significant impact on airports. Competition occurs, at some level, between several modes of transport, such as private cars, long distance buses and trains. The high speed rails are the ones that deserve particular attention and create real competition to air transport. It can create many threats to competition, but it can also generate opportunities for cooperation. (Chiambaretto & Decker 2012; Roman & Martin 2014)

Before the advent of high-speed train, trains were unable to compete with air transport, when distance between origin and destination was over 400 kilometers. Nowadays, air transport and HSR compete with distances between 400 and 600 kilometers. In these distances, the HSR is being the more popular choice of transportation. Some studies have outlined that 750 to 800 kilometers is the maximum distance where HSR can really compete with airplanes (IATA 2003). When travel is being measured by journey time, it has been found out that the tipping point is around 2,5 to 3 hours for on HSR journey, which is equivalent to one-hour flight time. Furthermore, the time that is spent on other parts at the journey, such as access, waiting and egress time needs to be taken into account, especially is air journeys where they may take relatively great amounts of time. (Roman & Martin 2014)

HSR may increase competition in a route it operates, and it can cause significant reduction in the market share of the more costly air transport alternative (Friederiszick et al. 2009). Regardless of that, it can also increase traffic to the airport working as a feeder transportation and that how expand airport's catchment area. Intermodality between high-speed trains and air transport is gaining momentum worldwide, as a way to rationalise more

efficiently both transport modes (Roman & Martin 2014). Intermodality is expanding especially in Europe, and three factors can be associated why that is happening:

1. The “rebirth” of rail industry,
2. The difficult trading environment for airlines
3. The development of airports, which can accommodate intermodal forms of transportation.

Over 130 airports around the world have a direct link to rail network or to a high-speed rail network. (Chiambaretto & Decker 2012)

Working intermodality between air and rail needs a real intermodal platform. An HSR station needs to be available inside the airport terminal, in order to develop attractive air-rail products. Furthermore, other services need to be integrated, for example, adequate ticket integration and handling integration. However, while these air-rail product characteristics support and increase the number of intermodal passengers, some passengers prefer to substitute planes by HSR whenever this possibility exists within the airport terminal. (Roman & Martin 2014)

In 2014, Roman & Martin made a research on what are the key drivers that facilitate intermodal connectivity between air and high-speed rail. The research was made in Spain at Madrid Baraja's airport. Figure 6 presents the results of the questionnaire that valued the main design attributes for air-rail intermodality. Figure 7 presents the degree of importance of other attributes that have been commonly reported in the literature as the competitive advantages of HSR over air transport.

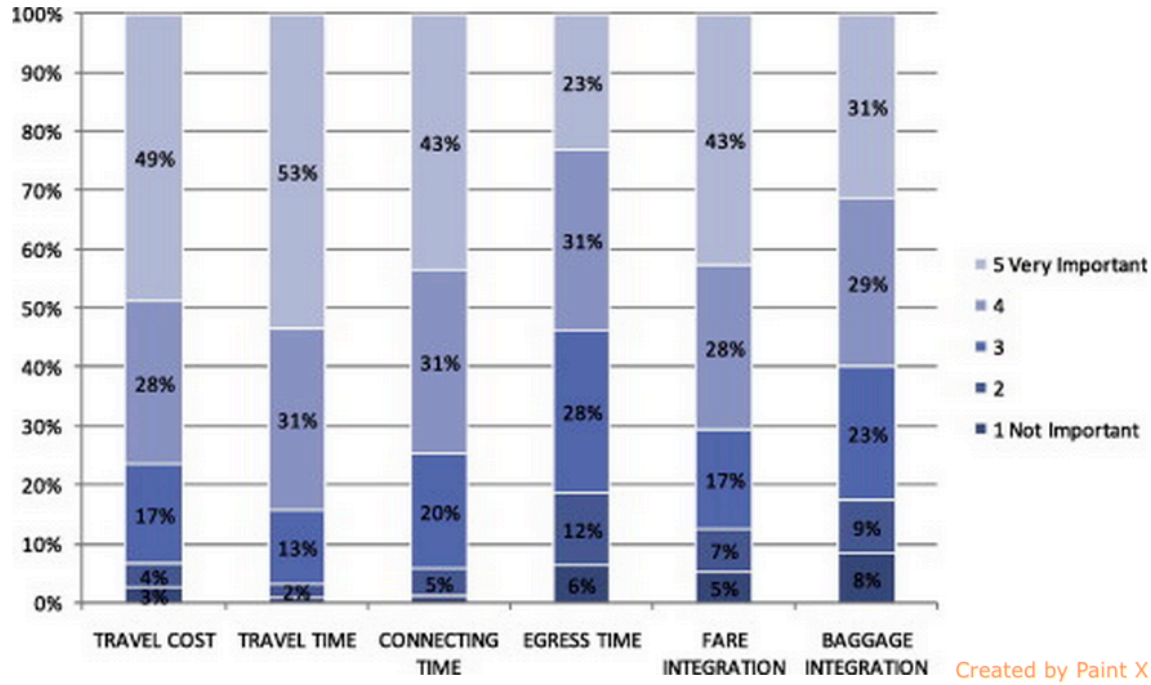

Figure 6: Importance of design attributes

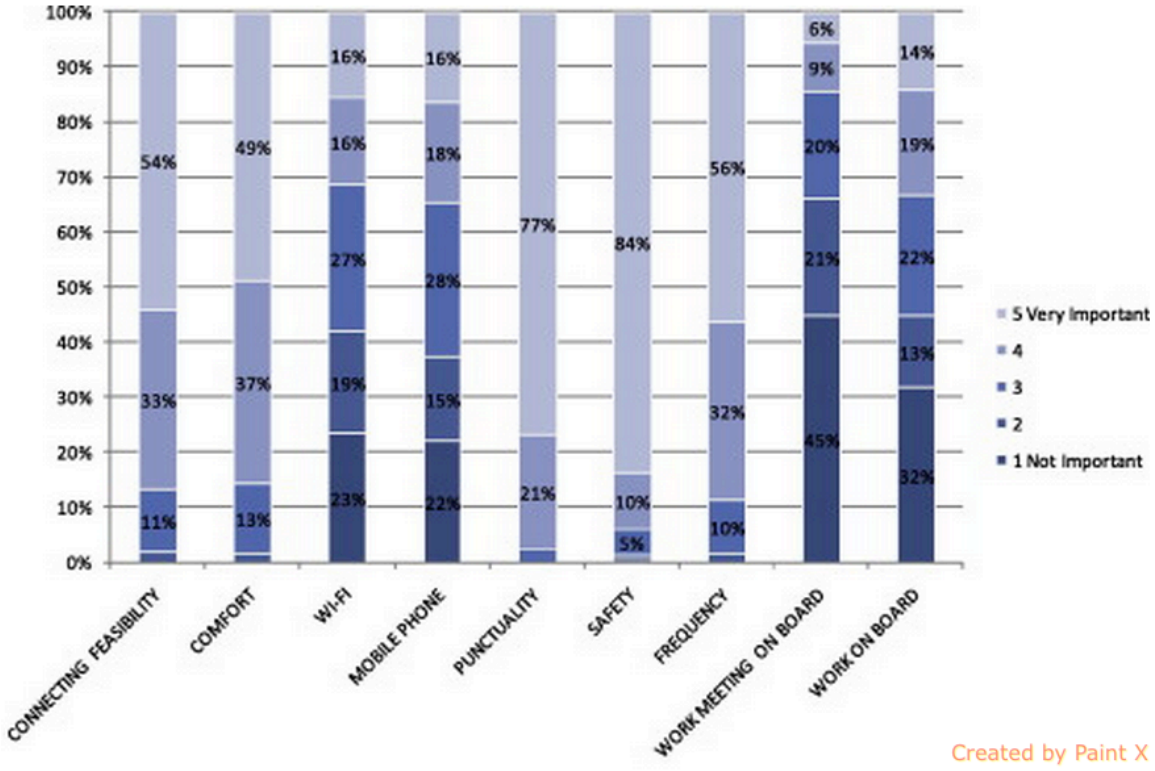

Figure 7: Importance of other attributes

From the design attributes, all of them were considered important, but travel cost and travel time were among the most relevant when the individual expresses his travel preferences. From other attributes safety, punctuality, service frequency and comfort were the most positively related attributes.

The research pointed out that compensation has to be provided in terms of in-vehicle, connecting, and access time, rather than in baggage integration. Difference between leisure and mandatory trips was found: baggage integration was only valued for leisure travel, and when at least one piece of luggage is checked-in. Moreover, the disutility associated with travel time was lower for leisure than for mandatory trips.

4.8 Cargo

Airports may also compete for cargo demand. The air freight demand is geographically concentrated and more than eighty percent of world's air freight is transported between the core markets of Asia, North America and Europe (Crabtree et al. 2006). Freight tonnages have been growing strongly, and in some cases it has outpaced passenger growth. Cargo has become a significant revenue source for airlines and airports.

There are two different kinds of air cargo transporters: pure and combined air cargo carriers. Pure cargo carriers focus on cargo services only and operate pure cargo aircraft fleets. Combined carriers use passenger aircraft's belly capacity to transport goods and that how combine passenger and freight transportation. Both operators use different kind of airports and have a different kind of demands for the airport.

The cargo carrier has three major factors that effect on selection of the airport. Geography of the airport location, financial return, and airport's operations certainty are the factors that have impact whether the airport is chosen or not. When the preferred location is located and no relevant service restrictions are found, the airport with the highest financial return potential is chosen by the cargo carrier (Gardiner & Ison, 2008).

Combined carriers focus mainly on their passenger business and cargo transportation has an increasing but still secondary role in their operations. That is why the hub airport for their cargo business is usually an airport with high concentration of their passenger traffic. That is why long-term collaboration between the airline and airport is desirable.

Pure cargo carriers are more flexible in relocating their services than combined carriers. Combined cargo carriers are linked to the hub airport by their passenger services and large investments (e.g. cargo terminals) at their hub airports. If the current airport does not offer a dedicated quality standard or changes its basic conditions, the pure cargo carrier will relocate its business to a comparable airport immediately as infrastructure investments for cargo airlines are negligible at non-hub airports, and feeder services (e.g. road transport) are usually available.

4.9 Preferences of airport choice for people from St. Petersburg

A questionnaire was presented to people of Saint Petersburg to found out the most important attributes for airport choice. In total 133 people answered the questionnaire. The average and standard deviation of the attributes are presented in Figure 8.

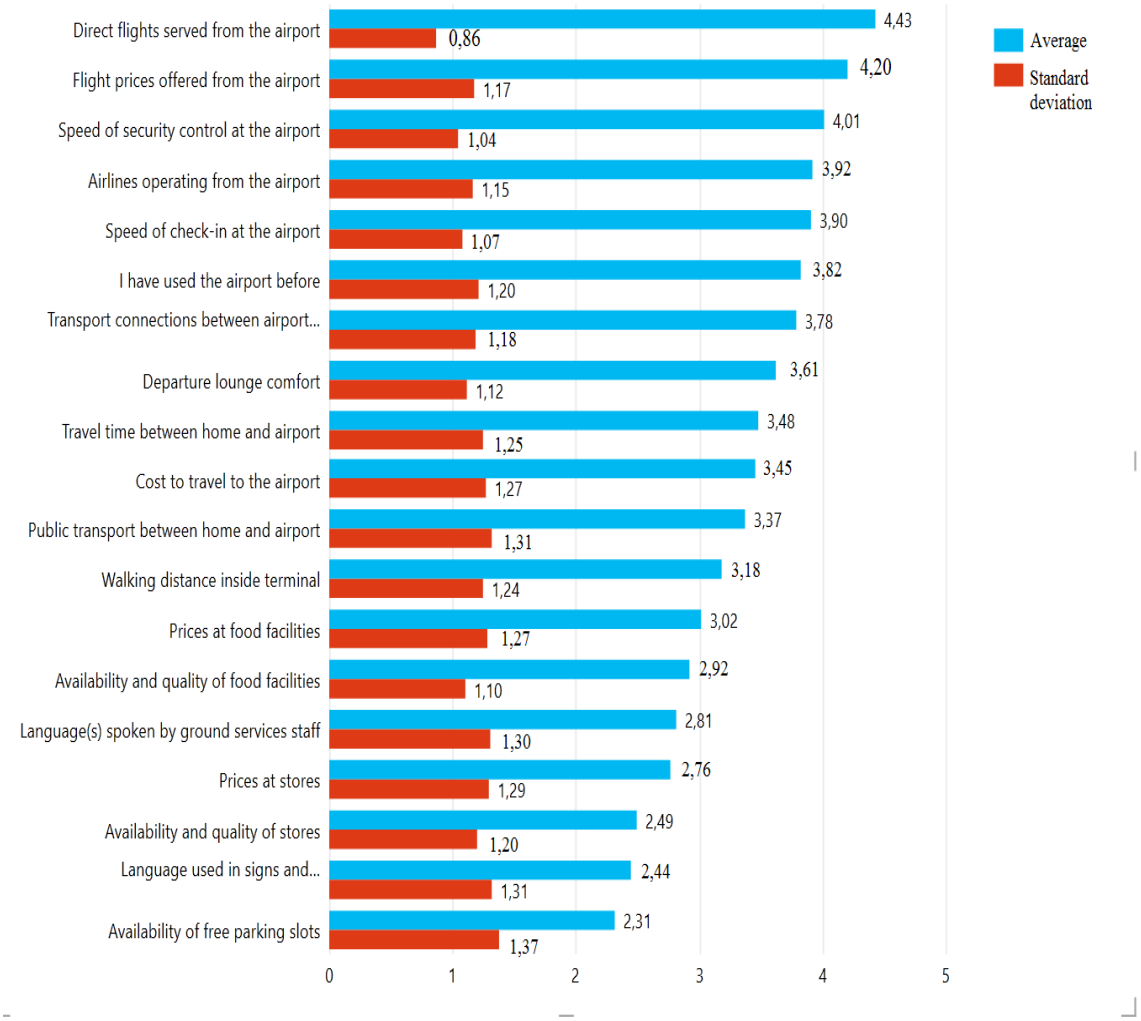

Figure 8: Answers for the airport choice questionnaire.

As it is shown in figure 8, the five most important attributes were: direct flights served from the airport, flight prices offered from the airport, speed of security control at the airport, airlines operating from the airport and speed of check-in at the airport. The five least important attributes were availability of free parking slots, language used in signs and information boards, availability and quality of stores, prices at stores and language(s) spoken by ground service staff.

People from St. Petersburg favor airports that offer direct flights, with reasonable price and airports where mandatory procedures happen in an effortless manner. The restaurant and shop selection was not seen as an important factor. The travel time to the airport was at the mid section in preferred attributes. From that we can conclude that they are willing to travel a bit further after direct and reasonable priced flights. Transport connections between the city center and airport were appreciated relatively high. That is also something that should be taken under consideration in order to attract Russian customers. The most often used airports were Pulkovo and Moscow's airports.

The attributes were also divided into different categories. The categories and their results are presented in figure 9.

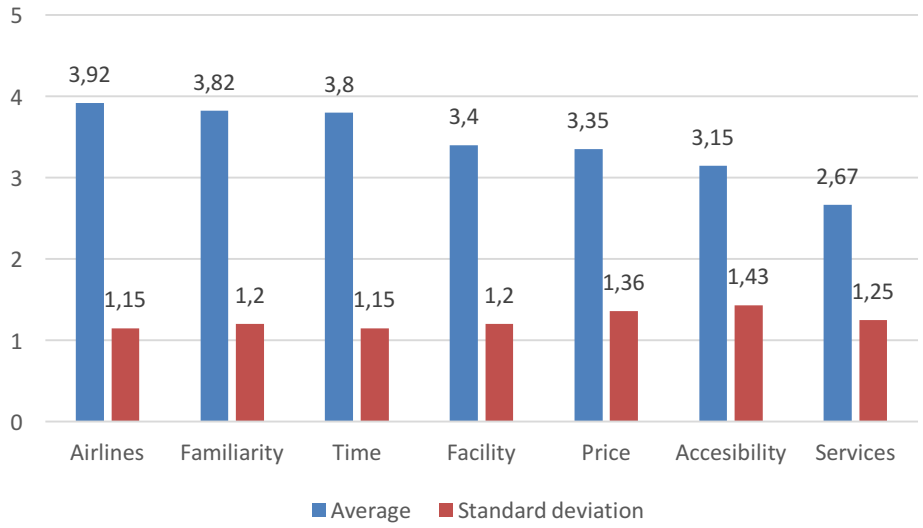

Figure 9: Results for airport choice categories.

In Figure 9, is presented the order of the categories. Airlines and familiarity were the two highest categories, but it should be taken into account that there was only one attribute in each. So there were no other attributes to lower the average, like in other categories. Services category was easily the last in categories. From that we can conclude that other attributes are more important than human or inhuman services.

All the categories were analyzed based on demographic factors. The results for the categories are presented in the next chapters.

4.9.1 Airlines

There was no remarkable difference in importance for the airlines operating from the airport, when people were divided by their income. All the groups considered it quite important, averages varying between 3,84 and 3,97.

People who traveled six or more times abroad in a year, considered it remarkably important, which airlines were operating from the airport. The average for the group was 4,80. The people who traveled less, once or less and two to five times a year, did not consider it as important. People who traveled once or less averaged 3,74 and people who traveled two to five times a year averaged 3,97.

Based on age, the younger ones found it more important, which airlines operated from

the airport. People less than 30 years old, averaged 4,09, while people over 51 years averaged 2,50.

There was no difference when people were categorized based by the purpose of the trip. People who traveled for business, vacation or visiting friends or relatives averaged between 3,92 and 4,04.

So the airports operating from the airport were most important for the less aged and for the people who traveled a lot. Least important it was for the elderly people.

4.9.2 Familiarity

People with higher income found it more important that they have used the airport before. People with lower income did not find it as important. People with higher income may not be as price sensitive and prefer more familiar airports.

People who traveled more did not find it as important as people who traveled less. People who travel a lot may choose the airport that suits their needs, not the one that they know.

Older people found it more important that they have used the airport before. They may want to avoid all extra complexity and use the airports that they know.

People who visited friends, and relatives found it most important that they have used the airport before, when passengers were categorized based on the purpose of travel. People, who traveled for business, did not find it as remarkable.

4.9.3 Time

There were no remarkable differences between groups for the time category attributes. All the averages for the groups' were somewhat constant, varying between 3,74 and 4,00. The people who traveled the most, found it most important. The result can be explained by their intense traveling. They are trying to minimize the time used for traveling because of high frequency of trips.

4.9.4 Facility

There was not much variance for the facility attributes between any of the groups. The elderly people found it most important averaging 3,88. All the other groups averaged between 3,35 and 3,45. In all the groups, the departure lounge comfort was found more important than the walking distance inside the terminal.

4.9.5 Price

The people with lowest income, the ones that traveled the most and the elderly ones valued price category more than other groups. The people, who traveled for business, had higher income and were between 31 and 51 years old valued the price category least. In every group, the flight prices offered from the airport was found as the most important attribute and the cost to travel to the airport was the second most important. The averages for the flight prices offered from the airport were still remarkably higher than for the cost to travel.

4.9.6 Accessibility

The elderly people and the people who traveled the most, valued airport accessibility the most. Elderly people valued most the transportation between home and airport, while people who traveled the most valued the connections between airport and the city center. In all other cases, than in elderly people, the transport connections between airport and the city center were more appreciated than the public connections between home and the airport.

4.9.7 Services

Services category was most important for the people who traveled a lot. They spend a lot of time at the airports, and it is logical that service levels matter. Most important service attributes for them were availability and quality of food facilities and stores. For other groups, there was no significant difference in the results.

5. AIRPORT ANALYSIS

5.1 Pulkovo

Pulkovo airport is the third busiest airport in Russia, handling bit over 14 million passengers in 2014. It is located 23 kilometers away from the center of St. Petersburg and it is reachable by taxi, car or busses. (pulkovoairport.com 2015)

Infrastructure

The total size of Pulkovo airport is 1 350 hectares, and it has two runways: southern and northern. The airport has two main terminals: New terminal 1 and Pulkovo 1. The new terminal 1 was opened at the end of 2013, and it is used as the main terminal at the airport. The terminal can handle 17 million passengers annually, and it covers an area of 150,000 square meters and consists of three levels. 13, 500 square meters from the terminal are reserved for shops, restaurants and similar facilities. Terminal is used mainly for international passengers, because the reconstruction of Pulkovo 1 terminal was finished at the beginning of 2015. Pulkovo 1 terminal is used for domestic flights only. (pulkovoairport.com 2015)

Pulkovo airport has also it's own cargo terminal. The area of cargo terminal is 4,7 ha, which includes production area of 12, 000 m2, with 6,000 m2 of warehouses, cargo acceptance areas and delivery areas. From the cargo airlines, Korean air is the only foreign company that has regular flights from Pulkovo. The rest of cargo airlines are Russian. Airport's strategic goal is to attract new cargo airlines from Asia and Middle East and that is why they have prepared a special incentive program for airlines providing discounts on airport charges and fees. (pulkovoairport.com 2015)

Passengers

In 2014, Pulkovo airport served 14,3 million passengers, which is an 11% increase in passenger traffic compared to 2013. The airport has forecasted an 7% increase in passenger traffic in 201**5** (Interfax 2014). From those 14,3 million passengers, Russian airlines served 7,2 million passengers, which is a 22,8 % increase, compared to 2013 and international airlines 7,1 million passengers which is an 1,2% increase compared to 2013. (pulkovoairport.com 2015) The imbalance between international and domestic growth rates can be explained by the economical situation and by the poor exchange rate of the ruble.

Lufthansa, O'zbekiston Havo Yo'llari (Uzbekistan Airways), Emirates, AirBerlin, and Turkish Airlines were the top 5 foreign companies operating flights from and to Pulkovo Airport. The total number of passengers carried by these air-carriers in 2014 summed to

1,043,934 people. (pulkovoairport.com 2015)

In 2014, the top five Russian air-carriers at Pulkovo were Rossiya Airlines, Aeroflot Russian Airlines, Transaero Airlines, UTair Group, and Siberia Airlines. These air-carriers together transported 9,082,480 passengers, which was around 64% of the entire passenger traffic. (pulkovoairport.com 2015)The fluctuation of the passenger traffic by months is presented in the figure 10.

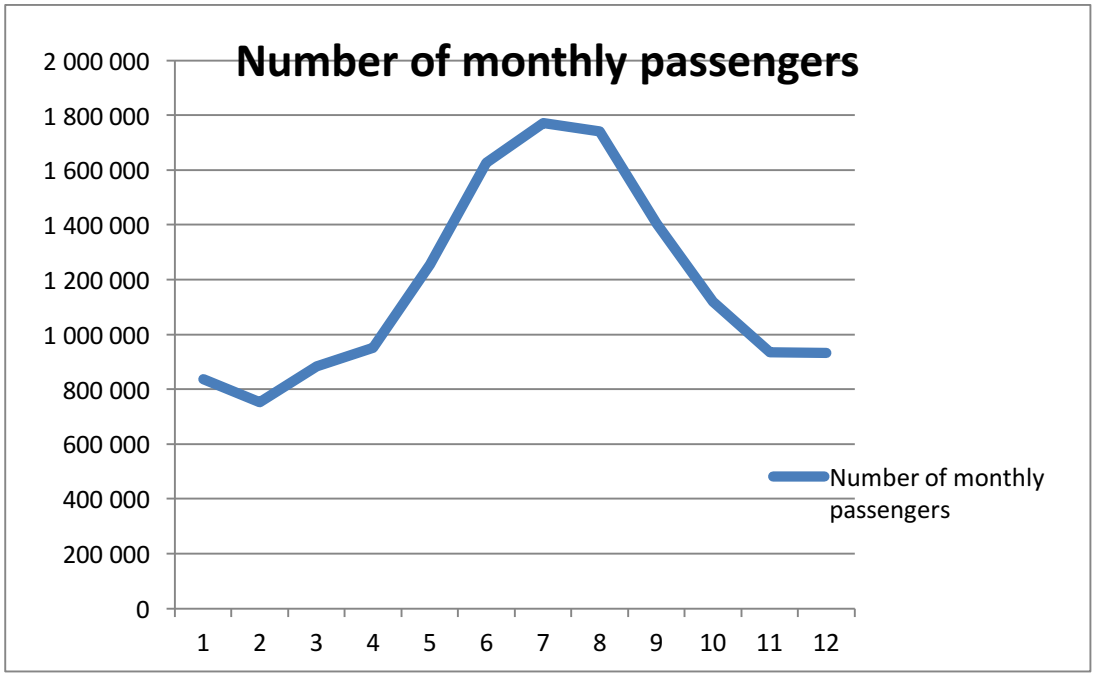

Figure 10: Fluctuation of the passenger traffic in Pulkovo airport (AnnaAero.com 2015)

As Figure 10 shows, the passenger traffic is not constant in Pulkovo. The most popular months are May, June, July and August. This can be explained by the improved weather conditions in St. Petersburg, which causes tourism peak to the city.

In 2014, 70 airlines operated flights from the airport on 159 routes. The most popular domestic and international destinations are shown in table 6.

Table 6: The most popular domestic and international destinations from Pulkovo airport 2014.

Domestic		**International**	
Destination	**Number of passengers**	**Destination**	**Number of passengers**
Moscow	3 378 131	Antalya	533 442
Simferopol	313 683	Hurghada	307 284
Sotshi	283 262	Frankfurt	290 954
Kaliningrad	281 815	Sharm-el-Sheik	252 201
Arkhangelsk	278 979	Larnaca	246 558
Murmansk	258 050	Munich	228 674
Krasnodar	250 854	Paris	219 383
Ekaterinburg	210 902	Berlin	194 872
Novosibirsk	208 459	Barcelona	168 958
Samara	165 653	Dubai	159 325

As we can see from the table 6, Moscow is the far most popular domestic destination from St. Petersburg. Moscow is the capital of Russia and big part of business, politics and governmental operators are located in Moscow. That creates large amounts of traffic between St. Petersburg and Moscow**.** Moscow has also good transportation connections to other Russian and international cities. The two biggest airports in Moscow are Domodedovo and Sheremetyevo, which served 33,04 million and 31, 57 million passengers in 2014 respectively (Moscow Domodedovo airport 2015, Sheremetyevo International Airport. 201*5)*. They were also the most popular airports from the perspective of Pulkovo airport in 2014.

As it is shown in table 6, the two most popular international destinations are Antalya and Hurghada. They are popular vacation destinations, and that is why they attract large amounts of passengers from Pulkovo. From the large airline hub airports Frankfurt is third, Paris is seventh and Dubai is the tenth most popular. Frankfurt and Paris both served over 200 000 passengers in 2014, Frankfurt serving 291 thousand and Paris 219 thousand passengers. Dubai served 159 thousand passengers in 2014.

Pulkovo works also as a hub and it has great volumes of transit traffic. The indirect passenger flows are presented in Table 7.

Table 7: Indirect passenger flows from Pulkovo airport in 2014.

North America		**Asia**		**Europe**	
Destination	**Indirect passenger traffic**	**Destination**	**Indirect passenger traffic**	**Destination**	**Indirect passenger traffic**
New York	44 767	Tokyo	16 794	Belgrade	17 275
Los Angeles	11 865	Shanghai	14 567	Stuttgart	16 348
Miami	10 760	Delhi	12 674	Bologna	12 170
San Francisco	10 381	Hong Kong	12 445	Palma de Mallorca	11 477
Washington	7 725	Ho Chi Minh City	10 376	Lyons	9 800
Boston	6 895	Singapore	10 376	Florence	9 417

From Pulkovo airport, there are no direct connections to North America and that is why all traffic from Pulkovo to North America are indirect. Far the most popular city in North America in 2014 was New York, where flew approximately 45 thousand people. The total sum of passengers who traveled to North America through Pulkovo was 92 393 passengers.

From Pulkovo, there are five straight connections to Asia: Goa, Phuket, Bangkok, Beijing and Seoul. As an addition to those destinations, there were also other well-liked cities in Asia. Tokyo and Shanghai were the most popular cities in terms of indirect traffic to Asia. The total sum of indirect traffic to the six most popular cities in Asia was 77 232 passengers.

There are direct flights from Pulkovo to many European cities, but not all of them are covered. The most popular indirect passenger traffic destinations were Belgrade and Stuttgart. The total sum of indirect journeys for the six most popular European cities was 76 487 passengers.

Figure 11 presents the ten most popular domestic and international travel destinations and also the most popular indirect destinations.

Figure 11: The mos popular direct and indirect destinations from Pulkovo airport.

In Figure 11, the red markers are the ten most popular domestic destinations. The marker number one presents the most popular domestic destination, in this case Moscow, and the marker number two presents the second most popular. The blue markers present the most popular direct international destinations, marked as a same ideology, where number one is the most popular one. The green markers present the most popular indirect destinations. Markers are categorized into six most popular destinations in Europe, North America and Asia. The order of the popularity and the city-number pair can be checked from the tables 6 and 7.

Connections

There are no metro or train connections to the airport. The airport is reachable by bus, taxi or car. Getting to Pulkovo airport from the city center by using public transportation takes approximately 1,5 hours to 2 hours. At first passengers need to travel south with metroline 2 and then take minibuses that take them to the airport. Finland train station is located in the city center and it is easily reachable by metro from around the city. If passengers leave in the city center it takes about hour and half longer to travel Helsinki airport with Allegro if compared to traveling to Pulkovo.

5.2 Frankfurt

Frankfurt's airport is the biggest airport in Germany and third biggest in Europe. It served 59,6 million passengers in 2014. It is located 12 kilometers from the city center of Frankfurt. It is reachable by bus, car or train, which has large variation of connections also to other German cities. (Frankfurt-airport.com 2015)

Infrastructure

The airport has two terminals: terminal 1 and terminal 2. The terminal 1 is a bigger one, and it has a capacity of 50 million passengers per annum. It is mainly used by the airport's main carrier Lufthansa, it's associated airlines and Star Alliance partnership airlines. The terminal 2 has an annual passenger capacity of 15 million passengers, and it is mainly used OneWorld and SkyTeam alliance airlines. (Frankfurt-airport.com 2015)

CargoCity Frankfurt is the leading air logistics in Europe. The area of CargoCity is 149 hectares, and over 250 companies and governmental agencies work in the premises. They provide employment for around 12,000 people. All major cargo airlines and leading logistics companies are represented. The logistics companies benefit from the central location at Europe, from having sufficient space at their disposal, and from access to intermodal connections. Frankfurt Airport gives direct reach to nearly 300 air destinations around the globe and it is also networked via the Frankfurt Motorway Interchange, Europe's most heavily trafficked intersection. In 2014, FRA ranked among the 10 largest airports in terms of cargo volumes. (Frankfurt-airport.com 2015)

Passengers

In 2014, Frankfurt airport served 59,6 million passengers. Most popular region counted from arrivals and departures was Europe. Table 8 presents the served regions and their share from the total flow of passengers.

Table 8: Passenger flow from Frankfurt (Fraport 2015)

Region	**Passengers**	**Share**
Europe	30,500,000	52%
North America	8,000,000	14%
Domestic	6,500,000	11%
Far East	6,500,000	11%
Middle East	3,000,000	5%
Africa	2,500,000	4%
Latin America	2,000,000	3%

As is shown in Table 8 the most two most popular regions, Europe and North America, cover two thirds from the total flow of the passengers. Table 9 shows the most popular countries that are served from Frankfurt.

Table 9: Most popular countries served from Frankfurt (Fraport 2015)

Country	**Departing pax**	**Share**
USA	3,400,000	11,5%
Germany	3,200,000	10,8%
Spain and Canary Islands	1,900,000	6,5%
Italy	1,500,000	5,2%
United Kingdom	1,400,000	4,6%
Austria	1,000,000	3,3%
Turkey	900,000	3,2%
France	900,000	3,1%
China (incl. Hong Kong)	900,000	3,1%
Canada	700,000	2,5%
Poland	600,000	2,0%
Russia	600,000	2,0%

As we can see from the table 9, USA and domestic destinations are the most popular ones from Frankfurt. Other European countries are also heavily served and they are in high positions at the list. This supports the idea that Frankfurt is working as a hub to North America and Europe from Pulkovo's point of view.

There is on average four straight daily connections from Pulkovo airport to Frankfurt Airport (Test on skyscanner 03.9 – 11.10). The connections and their connecting flights to North America are presented in figure 12.

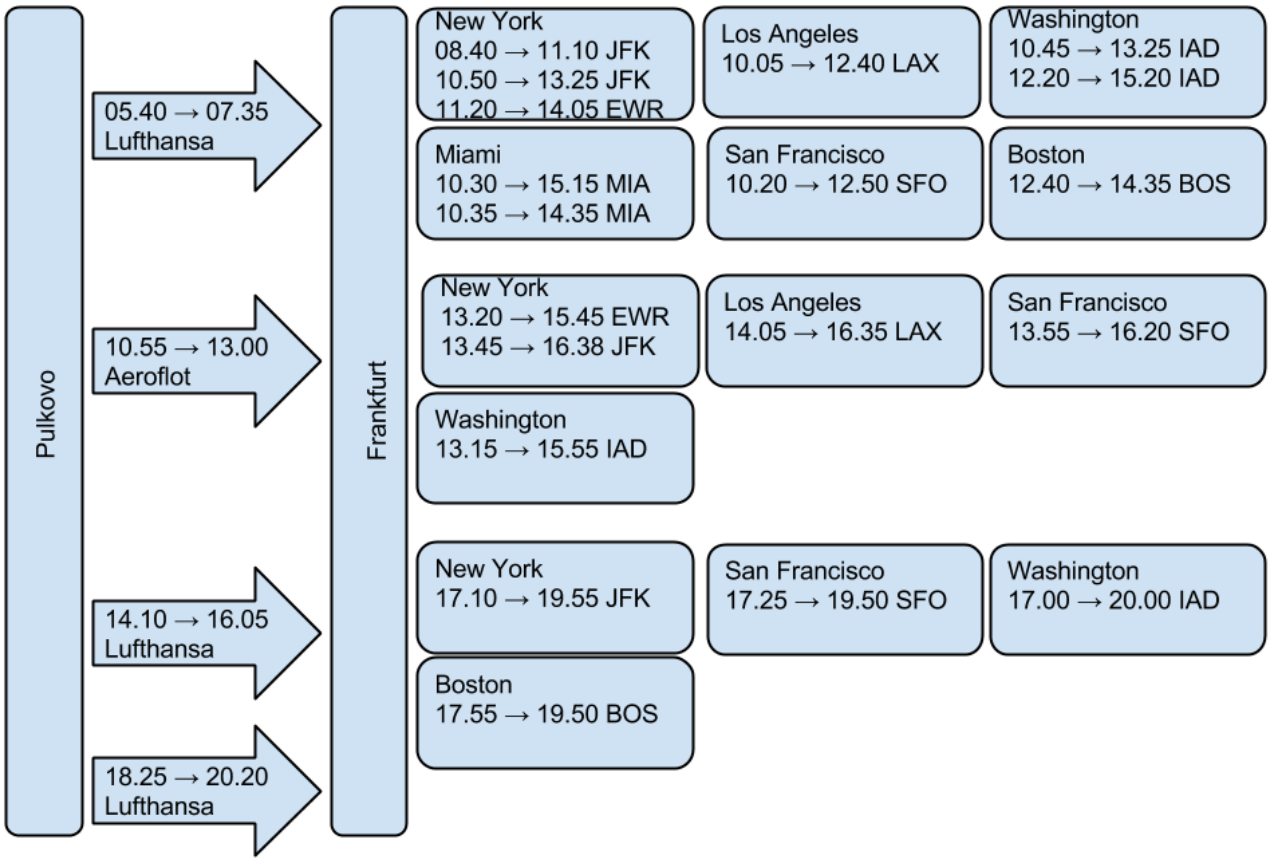

Figure 12: Connections from Pulkovo to Frankfurt and connecting flights to North America

As the above figure presents, most of the flights that go to North America are connected to the two first flights from Pulkovo airport. This is rational because the earlier departure time from Europe makes the arrival time to North America more pleasant. All of the flights also going to the main airport and no secondary airports are used. From the flight amounts can be concluded that Frankfurt is an important hub to North America from Saint Petersburg's point of view and that the connectivity levels are high. In figure 13, is presented the connections to Europe from Frankfurt

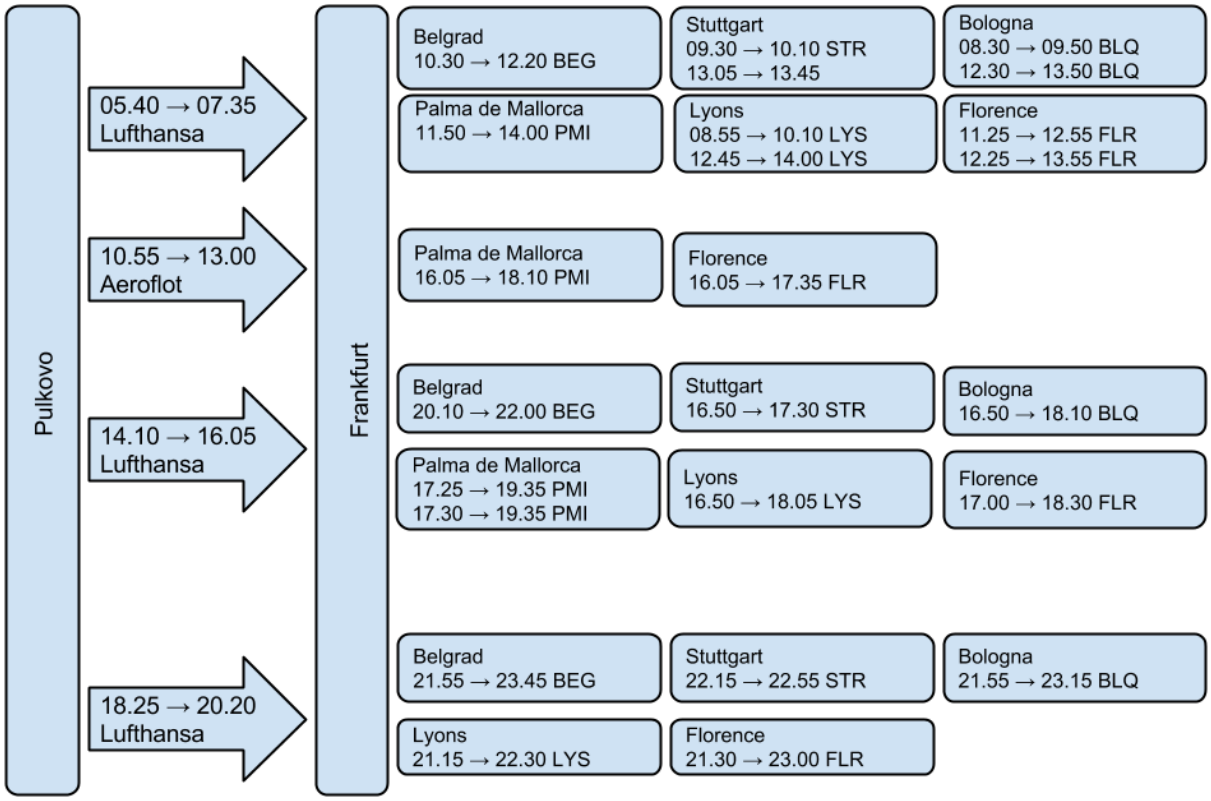

Figure 13: Connections from Pulkovo to Frankfurt and connecting flights to Europe

The morning flight from Pulkovo to Frankfurt has the most potential connecting flights to European destinations. The second connection is the least connective of the day. Belgrade is the least served destination, with three daily connections. . From the flight amounts can be concluded that Frankfurt is an important hub to Europe from Saint Petersburg's point of view and that the connectivity levels are high. Moreover, it can be said, that large amounts of passengers are using Frankfurt as an airport when traveling to Europe.

5.3 Paris Charles de Gaulle

Charles de Gaulle airport in Paris is located 25 kilometers North of Paris. In 2014 it served 63,8 million passengers being the 9th biggest airport in the world and 2nd biggest in the Europe. (aeroportsdeparis.fr 2015)

Infrastructure

Charles de Gaulle has three terminals, which have a capacity of 80 million passengers per annum. In addition to three passenger terminals, the airport has also six cargo terminals, which served 2,1 million tons of freight and mail in 2014. Terminal 1 serves international

and Schengen traffic and includes Star Alliance member companies. Terminal 2 handles international and Schengen traffic operated by Air France, SkyTeam alliance partners and companies in Oneworld alliance. Charters and low-cost carriers use terminal 3. The main airlines operating in the airport are Air France, EasyJet, Lufthansa, Alitalia and Fly be. Air France-KLM uses Charles de Gaulle as its main hub and the airport is also the main European hub for the SkyTeam alliance. (aeroportsdeparis.fr 2015)

The airport is also well connected by road and rail networks. It is connected with a motorway and it includes 27 000 parking spots. In terminal 2 is also a train station, which is connected to the main rail network in France. The train station also serves high-speed trains. That is why arriving and leaving from the airport is easy and fast paced. The airport can serve a bigger catchment area due to its good multimodal connections. In 2023, new rail link should be finished, which connects the center of Paris and Charles de Gaulle in just 20 minutes. (aeroportsdeparis.fr 2015)

Passengers

In 2014 Charles de Gaulle served 63,8 million passengers. From those passengers 30,6 % were connecting passengers. Passenger distribution by destination was following:

- France 8%
- Europe 47,4%
- International 44,6%

International connections play an important role in the airport and it is a popular hub between Europe and North and South America. There is over 18,000 connecting opportunities between long-haul and medium-haul flights. (aeroportsdeparis.fr 2015)

In figure 14, is presented the daily flights from Pulkovo airport to Charles de Gaulle airport and the connecting flights to North American destinations.

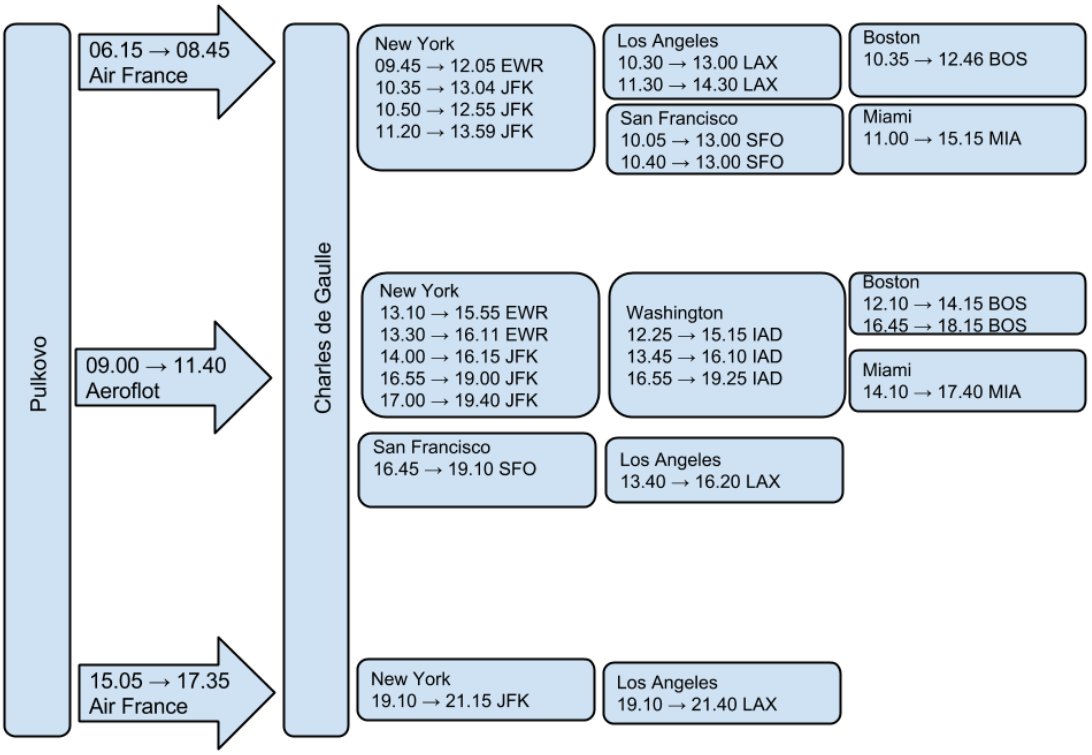

Figure 14: Flights from Pulkovo airport to Charles de Gaulle and connecting fligths to North America

There is three daily connections from Pulkovo to Charles de Gaulle: one that arrives in the morning, one in the midday and last one arrives in the early evening. The first two flights have most connecting flights to North America. Especially there is lot of connections to New York. The latest flight has only two connecting flights. The flights and timetables may vary during the year. From the flight amounts can be concluded that Paris is also an important hub to North America from Saint Petersburg's point of view and that the connectivity levels are high.

5.4 Moscow's airports

During the Soviet era, there was no competition between the three airports, Vnukovo, Sheremetyevo and Domodedovo, in Moscow. The traffic split regionally between the airports. After the crash of Soviet Union, Vnukovo lost almost all its traffic to Sheremetyevo, which is Aeroflot's home base and to privately run Domodedovo. (Auerbach & Koch 2007) Nowadays, Domodedovo is the busiest airport, measured in passenger traffic, by serving 33,0 million passengers in 2014, Sheremetyevo second largest with 31,6 million passengers and Vnukovo is the third biggest with 12,7 million annual passengers in 2014.

Moscow is an important transfer hub to Russian passengers. 75% of Russian passengers fly abroad from/via Moscow, 70% of domestic traffic goes to/from/via Moscow and 50%

of railway passenger traffic goes to/from/via Moscow. Into the airport, analysis is chosen the two biggest airports: Domodedovo and Sheremetyevo. (AnnaAero 2015)

The Pulkovo airport and Moscows' airports are connected with many daily flights. The St. Petersburg – Moscow route is also operated with high-speed train Sapsan and trip's duration is 4 hours.

5.4.1 Domodedovo

Infrastructure

The airport has one passenger terminal, which is 135 000 sq. m and has 132 check –in desks. The passenger terminal offers many different kinds of services for the customers. It has, for example, art gallery, DVD cinema and different kind of shopping opportunities. The airport is the base airport in Russia for the member airlines of Star Alliance and oneworld. (Domodedovo 2015)

The airport has good land transport connections. It is connected with Moscow by highway and railway. The highway allows passengers to arrive or leave from the airport by taxi, private car or public transportation. The airport has parking places for 6000 cars. Center of the city and the airport is also connected with a high-speed Aeroexpress train, which takes 40 minutes from Paveletsky station to the airport. The terminal at Paveletsky station is equipped with check-in desks and airline ticket booking offices. Partner airlines are also working in co-operation with the railway operator in order to create inter-model programs. The programs offer advanced passenger service and baggage handling technology, optimal alignment of flights with the railway schedule, free check-in at Paveletsky Station and free of charge travel on the Aeroexpress train. (Domodedovo 2015)

In Domodedovo is located one of the largest international air cargo complexes in Russia. It has warehouse area of 13 440 square meters, and it is capable of handling 600 tonnes of cargo per day. The cargo terminal is working day and night, and it can handle different kinds of cargo, including hazardous ones. (Domodedovo 2015)

Passengers

There are 86 airlines operating regularly in Domodedovo airport: 42 of them are international carriers, 28 are Russians, and 16 carriers are from CIS countries. Flights are operated into 239 destinations and 85 of them are unique to Moscow region. From the 239 routes, 79 are domestic, 114 are international and 46 are to CIS countries. The largest carrier in the airport is S7 with 7.08m pax. (Domodedovo 2015)

On average, there are 20 daily connections from Pulkovo airport to Domodedovo operating between 5 am and 11 pm, and the flight duration is 1,5 hours. In this work, Domodedovo is defined as a hub to Asia from Pulkovo's point of view. The connections to the most popular indirect Asian destinations are presented in figure 15.

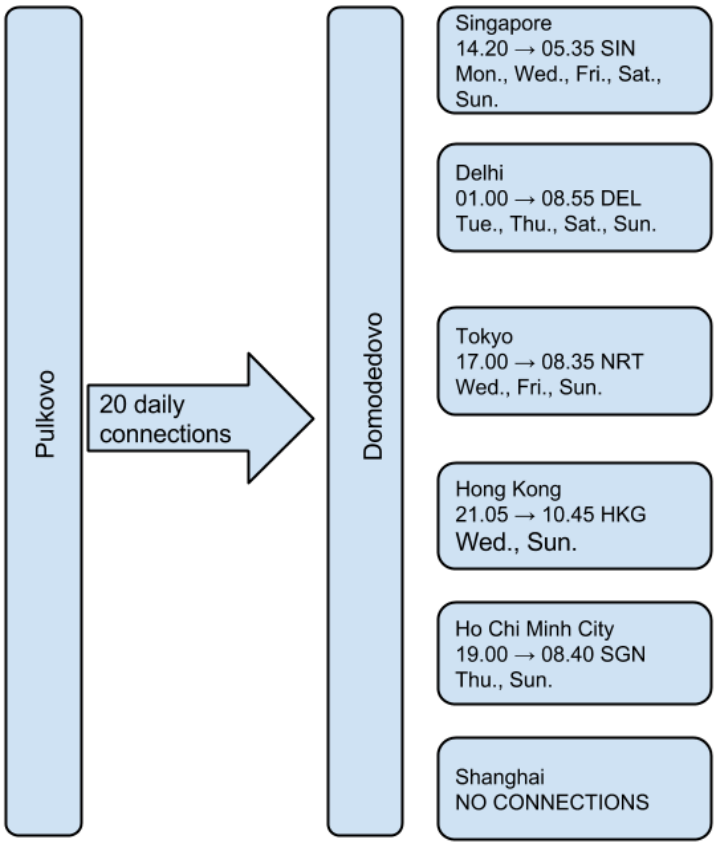

Figure 15: Connections to most popular Pulkovo's Asian destinations from Domodedovo

As the picture presents, none of the routes are served on a daily basis. The most served route is Domodedovo – Singapore, which has five weekly connections and there are no direct flights to Shanghai. There are approximately 20 daily connections between Pulkovo – Domodedovo and top of that the high-speed train Sapsan may also work as a feeder transportation between St. Petersburg and Moscow.

Even though there are good daily connections between Pulkovo and Domodedovo, there are only few flights from Domodedovo to Asia. The amount is not adequate to make Domodedovo as Hub to Asia from Pulkovo's point of view. That is why a conclusion must be made, that differing from root hypothesis, Domodedovo is not as important hub to Asia as it was predicted.

5.4.2 Sheremetyevo

Sheremetyevo airport in Moscow served 31,6 million passengers in 2014. It is the second biggest airport in Russia and in Moscow right after Domodedovo. It is the biggest airport complex in Russia when measured in area and it is the biggest cargo airport in Russia. (svo.aero.ru 2015)

Infrastructure

There are six passenger terminals in Sheremetyevo, which cover an area of 480 000 sq. m. There are two different terminal complexes, southern and northern, which are connected by free shuttle bus. The airport has a capacity of 35 million annual passengers. It is located 29 kilometers from the city center and 11 kilometers from the Moscow's ring road. It has two parallel runways, and it is operating 24 hours a day. The minimum connection time at the airport is 40 minutes. (svo.aero.ru 2015)

The airport and city center is connected with high-speed Aeroexpress trains. The trains leave from Belorussky railway station every 20-30 minutes, and the travel time is 30-40 minutes. It is also possible to transfer to other Moscow's airports by using Aeroexpress air-rail links. The Sheremetyevo air-rail line is also integrated in Moscow Rapid Transit System. Buses, cars or a taxi can also reach the airport. There are 14 different parking spaces close to the terminals. (svo.aero.ru 2015)

Passengers

Airport's route network includes over 200 destinations and approximately 20% of the passengers are transfer passengers. Aeroflot is operating as a main carrier at the airport and all the three major alliances are represented at the airport. SkyTeam has the strongest representation, while Star Alliance is second and Oneworld has only one representer, Finnair. (svo.aero.ru 2015) In this work, Sheremetyevo is considered as a hub to Asia from Pulkovo's point of view. In figure 16 is presented the connections to the most popular indirect destinations from Pulkovo.

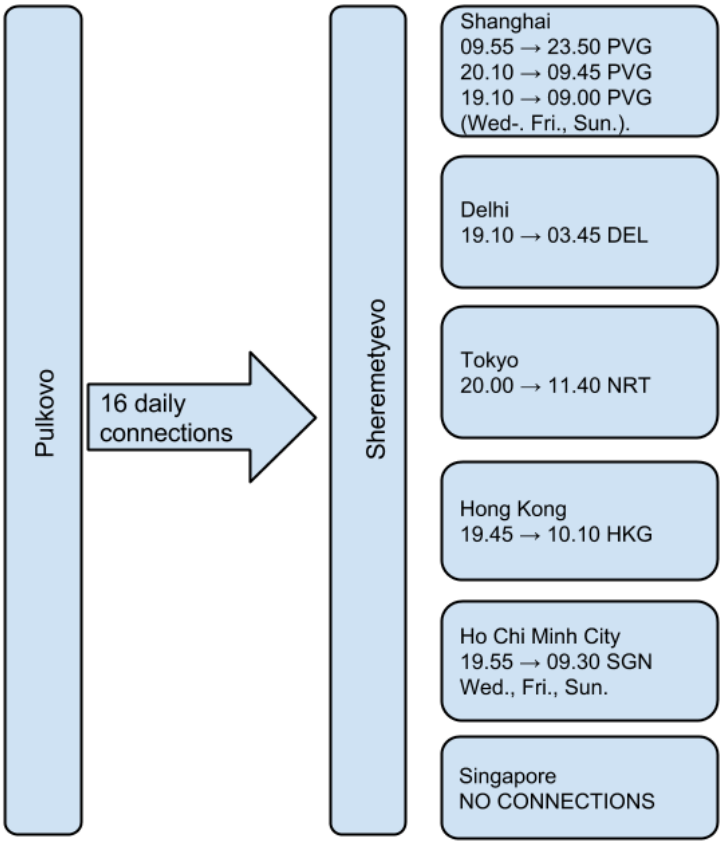

Figure 16: Connections to the most popular indirect destinations from Pulkovo through Sheremetyevo

Shanghai has the most connections from Sheremetyevo. It has two daily flights and one that serves three days a week. Delhi, Tokyo and Hong Kong are all served with a one daily connection. Ho Chi Minh City has three weekly connections and there is no direct flights between Singapore and Sheremetyevo. Sheremetyevo and Domodedovo were thought to be hubs to Asia from Pulkovo's point of view. Neither one of them has great daily connections to the popular indirect destinations. Sheremetyevo has slightly better connections.

5.5 Dubai

In 2014, Dubai's international airport served 70,4 million passengers and 2,36 million tonnes of cargo. It had most international passengers in the world. (dubaiairports.ae 2015)

Infrastructure

The airport has four terminals: three passenger terminals and one cargo terminal. The three passenger terminals have a total handling capacity of 80 million annual passengers. The airport is expanding all the time, and it is forecasted that in 2020 over 100 million and in 2030 approximately 290 million passengers will pass through Dubai international

airport. Massive $32bn expansion package has been announced for development of Dubai's international airports: Dubai international and Al Maktoum international. Especially developing of Al Maktoum international has been taken as a high-priority project and in 2020 it should be able to serve 160 million flyers. (dubaiairports.ae 2015)

Terminal 1 has a capacity of 22 million passengers, and it is used by over 100 airlines. Terminal 2 has a capacity of 10 million passengers, and it is operated by over 50 airlines, which mainly operate in the Persian Gulf region. The terminal 3 has a capacity of 43 million passengers and Emirates, and Qantas are the only airlines to use it. Terminals 1 and 3 are located next to each other while terminal 2 is on the opposite side of the airport. Terminals 1 and 3 are connected by common transit area and shuttle services run from terminal 2 to terminals 1 and 3. The journey time from terminal 2 to terminal 1 is 20 minutes and to terminal 3 30 minutes. (dubaiairports.ae 2015)

The airport is reachable by car, taxi, bus or metro. The Dubai Metro operates two lines through the airport. The red line has a station at terminal 1 and terminal 3 and the blue line has a station at terminal 2. The airport is also connected with a highway and is that how easily accessible by busses, cars and private cars. (dubaiairports.ae 2015)

Dubai international is the third busiest hub in the world for international air freight. It has an annual capacity of 2,5 million tonnes. Together with Al Maktoum international airport, the Dubai airports have a good portfolio of services to offer for cargo and freight transporters. (dubaiairports.ae 2015)

Passengers

There are approximately 140 airlines serving 270 destinations from the Dubai international airport. The passenger numbers have been growing on average 15% a year. The greatest advantage for the airport is its location. It is "Europe's most easterly hub and Asia's most westerly hub". There are no hard weather conditions, no unions to go to strike and two-thirds of world's population are within an eight-hour flight and on-third lives within four-hour flight. Dubai international airport is a popular hub between Asia and Europe. The top destinations from Dubai are India, UK, Saudi Arabia and Pakistan. The busiest routes are between Dubai and London, Doha, Kuwait, Mumbai and Jeddah. The passenger traffic has surged in 15 years. In a year 2000, the airport served 12,3 mil-lion passengers, so the growth has been rapid. (dubaiairports.ae 2015)

Emirates is the main carrier at the airport. Moreover, other gulf carriers are strongly represented and Emirates and Qantas are the only airlines to operate at the Terminal 3. There is only one daily connection from Pulkovo to Dubai international. The connecting flights from Dubai to Asian destinations are presented in figure 17.

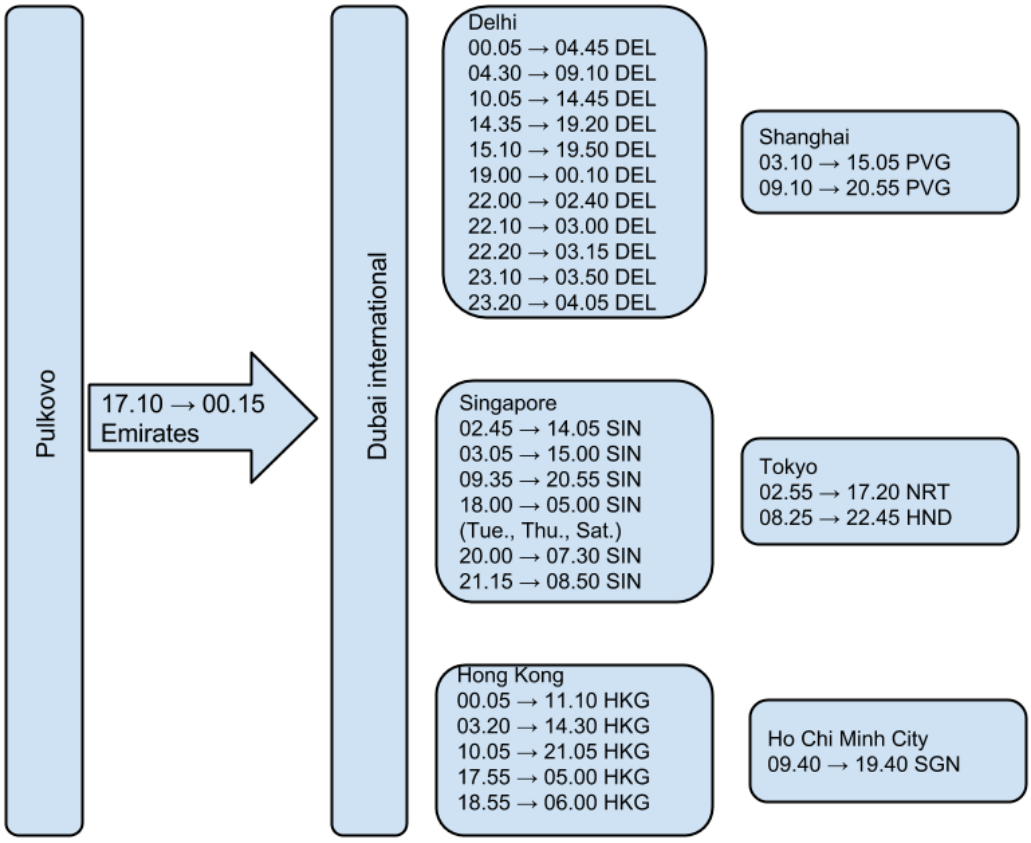

Figure 17: Connecting flights from Dubai to Asian destinations

As is shown in picture 17, the Asian destinations are well served. Delhi, Singapore and Hong Kong are served with many daily connections. The routes have also at least one daily flight. The only problem is the flight between Pulkovo and Dubai, which does not allow large passenger volumes to travel from Saint Petersburg to Asia through Dubai. The only daily connection seems also to be terminated for winter months, so it can be concluded that Dubai is not a working hub to Asia from Saint Petersburg's point of view.

5.6 Stockholm Arlanda

In 2014, 22,4 million passengers traveled through Arlanda airport. 17,3 million of them were international passengers and 5,1 million were domestic. The airport is located 42 kilometers north from Stockholm and 28 kilometers south from Uppsala. (swedavia.se 2015)

Infrastructure

The airport has four terminals: Terminal 2, 3, 4 and 5. Domestic flights operate from terminals 3 and 4 and international flights operate from terminals 2 and 5. All of the terminals are connected, and the movement between the terminals can be done by walking. SAS is the main carrier at the airport. There are three take-off and landing runaways. (swedavia.se 2015)

Arlanda airport is connected with high-speed trains, long-distance trains and commuter trains. The high-speed train, Arlanda Express, runs non-stop between Stockholm and Arlanda in 20 minutes. The tickets are sold in both ends in automates and in staffed counters. The commuter train takes 38 minutes between Arlanda airport and Stockholm and 18 minutes between Arlanda and Uppsala. The long-distance train operates from Arlanda Central station and there are over 70 daily long-distance connections. (swedavia.se 2015)

The airport is also accessible by busses, taxis and cars. Air Shuttle busses departure every 20 minutes and the travel time between city center, and the airport is 35 minutes. There are also several other bus connections to neighboring cities and villages and 17 000 parking spots for cars. (swedavia.se 2015)

Passengers

There are 81 airlines operating from Stockholm Arlanda: 70 of them fly international routes, six airlines fly international and domestic routes, five airlines fly only domestinc routes and three airlines fly cargo and mail. There are 181 destinations from the airport and 151 of them are international, 34 of which are intercontinental. (swedavia.se 2015)

The top ten passenger destinations are Copenhagen, London, Oslo, Helsinki, Luleå, Gothenburg, Amsterdam, Umeå, Frankfurt and Malmö. The airport serves as a major hub for SAS, Norwegian and NextJet. The direct flights between Pulkovo airport and Arlanda airport and connecting flights to Europe, North America and Asia are presented in a figure 18.

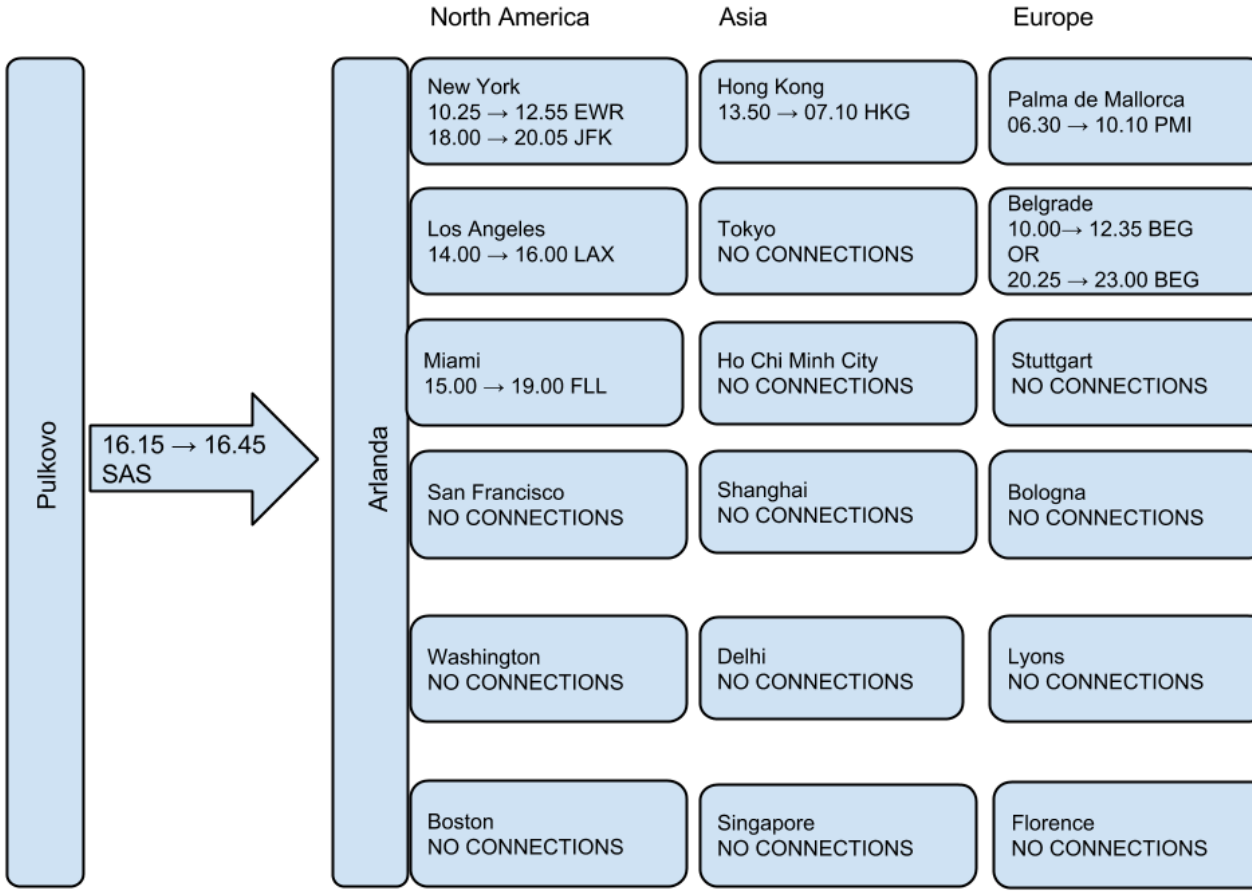

Figure 18: Connections from Pulkovo to Arlanda and from Arlanda to selected destination

There are not too many flights between Pulkovo and Arlanda. In October 2015, there were 18 direct flights, in November 0 and on December 6 direct flights. Most often the route between the airports went through Riga or Copenhagen. Connections to North America were best out of the three continents. New York was served on daily basis, Los Angeles had eight direct flights in October but none in November or in December. Flights to Miami were flown on Thursdays and on Saturdays. The only destination in Asia, that had direct flights, was Hong Kong. There were no daily connections but on average every other day. To Mallorca was five connections in a week, and Belgrade had 19 connections in October, five connections in November and seven connections in December. The one occasional daily connection from Saint Petersburg to Stockholm does not allow passengers to use Arlanda as a hub as sporadically. This means that Arlanda does not play an important role in the airport network from Saint Petersburg's point of view.

5.7 Helsinki

In 2014, Helsinki-Vantaa airport served 15,9 million passengers, which was an 4,4% increase when compared to previous year. The airport is located 18 kilometers from the city center of Helsinki.

Infrastructure

The airport has two terminals: Terminal 1 and Terminal 2. The Terminal 1 is used by airlines that are part of Star Alliance, and the Terminal 2 is reserved for airlines that are part of Oneworld and SkyTeam alliances. Walking corridor connects terminals and the distance between terminals is around 300 meters. The airport is a main hub for Finnair, Blue1 and to Nordic Regional Airlines. The airport is also a significant node for Norwegian.

The airport is accessible by car, bus or train. A new rail connection opened in 2015, which connects Helsinki airport to main railroad infrastructure. Con of the connection is that there are no straight connections from Helsinki airport to other Finnish cities, and passengers need to change trains in other stations (Tekniikka & Talous 2013, s. 2). The connection is also one of the slowest in Europe. The 18-kilometer trip from Helsinki airport to center of Helsinki takes approximately 30-40 minutes. For example, trip from Stockholm Arlanda to center of Stockholm takes 20 minutes and distance being 40 kilometers. Also in London and in Oslo the travel from the airport to city center is faster, even though the airports locate further away from the center than in Helsinki. (Tekniikka & Talous 2013, s. 3) At day, the trains go every ten minutes, between 19-22, they operate in every 15 minutes and after that the gap between trains is 30 minutes. Tikkurila train station and the airport is also connected with a bus connection that operates in every ten minutes. The bus between airport and city center goes in every 20 minutes. There are 12400 parking spots at the airport and in 2016 3000 new spots are opening.

The opening of the train connection has not gone as planned. The station to the terminal has not opened as scheduled, which has congested the bus connections going to the airport. When the new connection was opened the amount of bus connections was decreased. Tourists and users of the airport have not yet found the new train connection. It would be important to make the connection functional in order to guarantee smooth transfer between the airport and its catchment area. (Helsingin Sanomat 2015)

Finnair is going to build a cargo terminal to Helsinki airport. The construction started in March 2015, and it should be ready in spring 2017. The area of terminal is going to be 35 000 sq. m. and it has processing areas for medicine and life-science products and for easily perishable products. The new terminal will be able to serve the arriving Airbus A350 plane.

Passengers

If air traffic is not taken under consideration, Finland is located 2-3 days further away from the main markets than its Middle European competitors. Mainly for this reason, Finnish logistic companies have higher logistical expenses than in competing countries. On the other hand, location in relation to Russia is excellent. (Liikenne- ja viestintäministeriö 2005)

The location emphasizes importance of air traffic in Finland. Unlike in Middle Europe, connections in other modes of transport from Finland to its neighboring countries take longer period of time when compared to air traffic. Only when traveling to Russia and from Northern Finland to Sweden or Norway, road- and rail transportation can compete with air traffic. Building of high-speed rails between Finland and its neighboring countries is impossible because of geography and Baltic Sea. Only exception is Finland and Russia, which are linked by a high-speed rail. There is also a possibility to build a high-speed rail between Finland and Sweden. The ship traffic is not able to compete with the flight traffic, when measured in time, Estonia, Sweden and Russia being the only exceptions. That is why flying is the only reasonable mode of transportation when traveling to Middle Europe or further. (Kaartinen 2013) Furthermore, the existing climate in Finland causes constant demand for traveling, and air traffic is the only mode that can respond to that demand (Aalto et al 2012).

Finland has a great geographical gateway position between Asia and Europe. There are good aerial connections between Finland and Asia, which has enabled better daily connections to Middle Europe than domestic traffic currents would allow. (Liikenne- ja viestintäministeriö 2005) Even though Finland and Helsinki airport have a geographical advantage when compared to other North European hub-airports (Amsterdam, Copenhagen and Frankfurt), competition is getting tenser. For example, Pulkovo airport in St. Petersburg and Riga’s airport are expanding in order to start straight route connections to Asia. Also Stockholm and Copenhagen have made an agreement for new investments, which are aimed to increase share of intercontinental connections at the airports. (Liikenne- ja viestintäministeriö 2013) Developing Finland and Helsinki-Vantaa as a hub between Europe and Asia has been one of the main focusing areas the past years. In figure 19, is shown the development of passengers on Asia's routes at Helsinki airport.

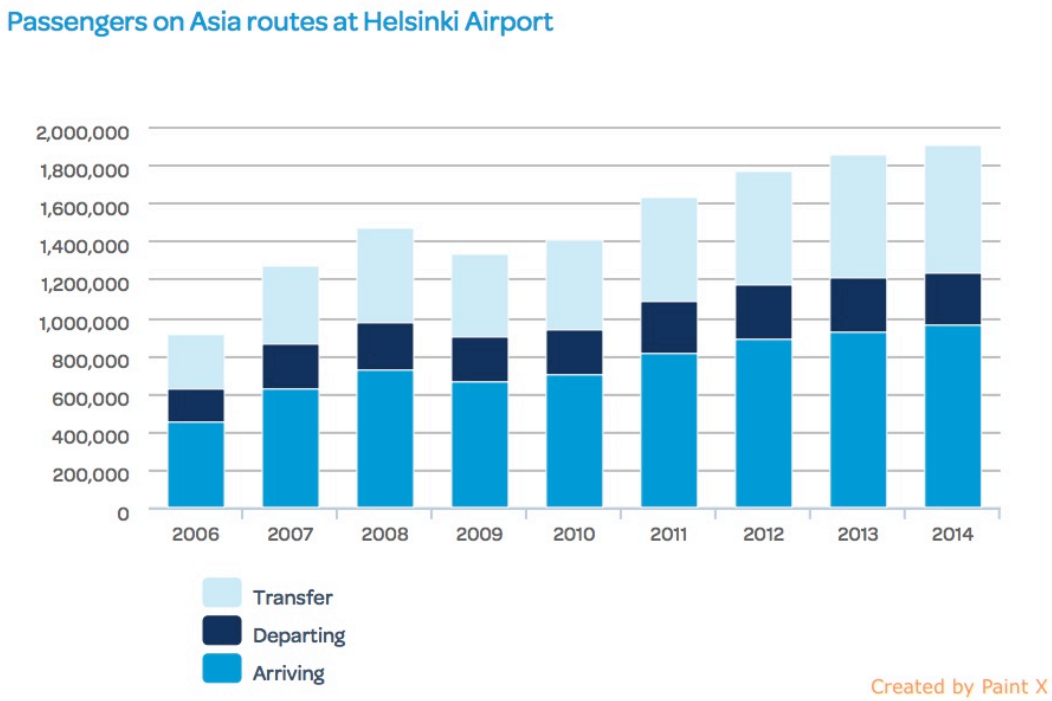

Figure 19: Development of passenger flows on Asia routes at Helsinki Airport (Finavia 2015)

As it is shown, the biggest growth in the past nine years has happened in increase in arriving and transferring passengers. In nine years the traffic on Asian routes has doubled, which is a good indication to successful strategy. In 2014 Helsinki airport was the fifth most important airport for Asian traffic in Europe, offering 15 direct routes to Asian destinations (Finavia 2015). In figure 20, is shown the share of international passenger traffic at 2014.

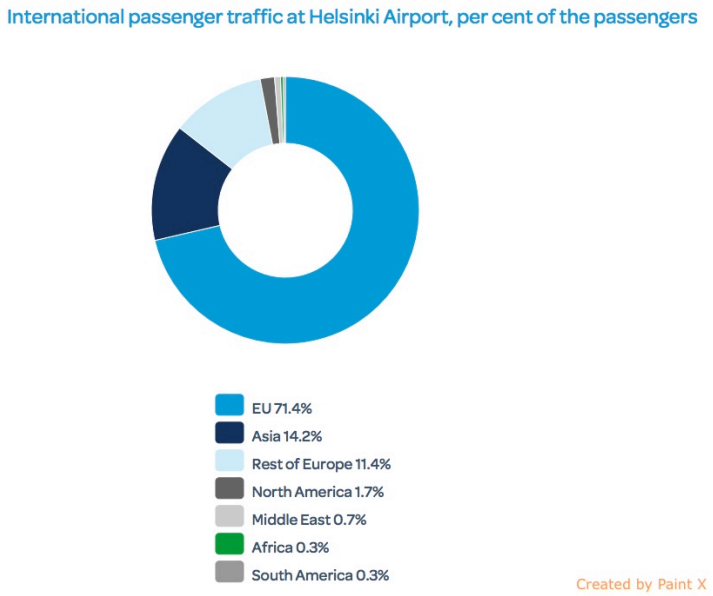

Figure 20: Shares of international passenger traffic at Helsinki airport (Finavia 2015)

As it is shown in figure 20, destinations to EU are still the most popular at Helsinki airport, but like earlier stated Europe's internal air traffic markets are being close to its saturation point (Airbus 2012, p. 87). This means that the traffic between Finland and Europe will lose its relative share and traffic between Finland and Asia will increase.

In 2014, there were 26 reguralry flying airlines operating at Helsinki-Vantaa airport and the airlines served 90 regular routes. In figure 21, is presented the flights from Pulkovo to Helsinki-Vantaa and connections from Helsinki-Vantaa to destinations in North America, Asia and in Europe.

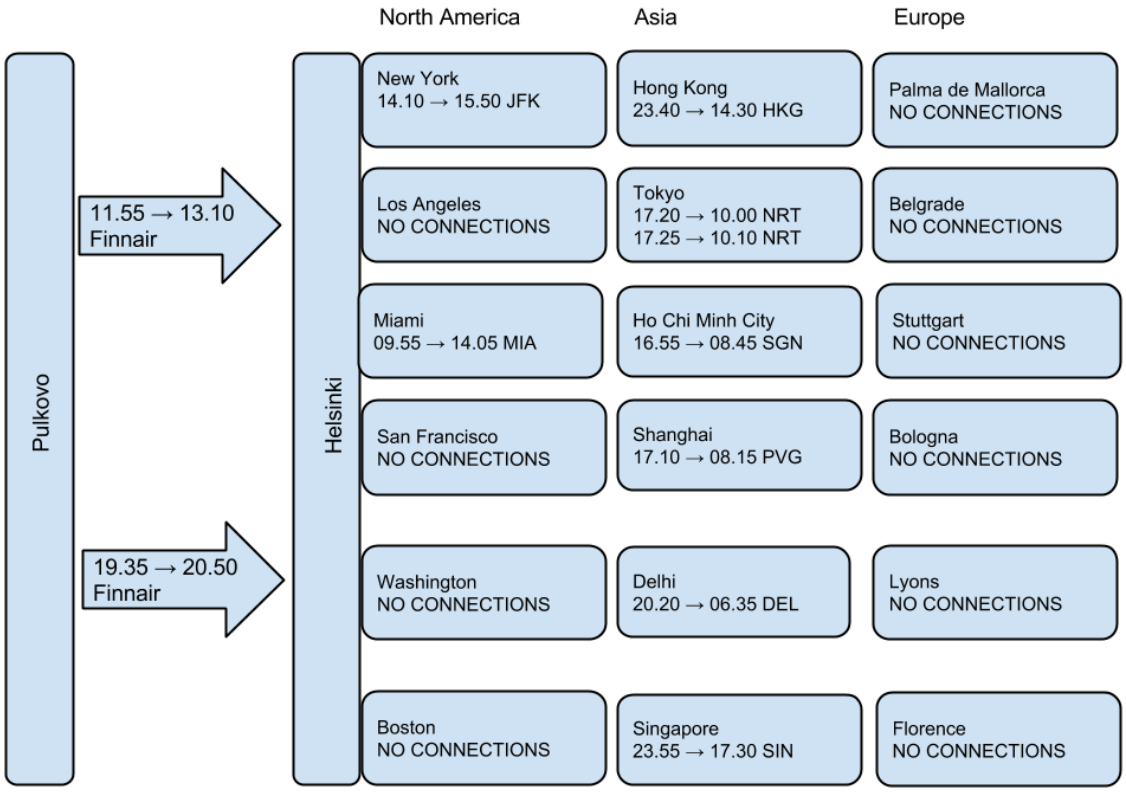

Figure 21: Connections to and from Helsinki-Vantaa airport.

There are two daily connections from Pulkovo to Helsinki airport. The first one serves morning passengers, and the second one serves evening passengers. There are two straight connections from Helsinki airport to North America. The flight to New York leaves at 14.10 and it is flown every day of the week. The other straight connection to North America flies to Miami. The connection is flown on Mondays, Thursdays and on Saturdays. The flight leaves from Helsinki airport at 09.55.

To Asia, there are more connections than to North America. There are direct flights to Hong Kong, Tokyo and to Shanghai that are flown every weekday. To Tokyo, there are two daily connections. The first connection is flown by Finnair and the second one by

Japan Airlines. To Delhi is flown on Mondays, Tuesdays, Thursdays, Fridays and on Saturdays. To Singapore, the connections are flown on Mondays, Tuesdays, Thursdays, Saturdays and on Sundays. To Ho Chi Minh City, there are only few flights per month, and it is not counted as a regular destination. To Europe's destinations, there are no straight connections from Helsinki airport.

The minimum change time at Helsinki airport for international flights is 40 minutes. From the schedule analysis, we can see that the only flight that is connected perfectly for flights from Pulkovo is the connecting flight to New York. In that connection, the waiting time at the airport is minimal. All the other connections demand more waiting at the airport. The departure time Miami does not allow people from St. Petersburg to use any connecting flights from Pulkovo to Helsinki airport. Furthermore, all the flights to Asia demand considerable waiting time at the airport if the passengers are using connecting flights from Saint Petersburg.

Two daily connections from Pulkovo to Helsinki, good connections to Asia and two connections to North America state that Helsinki can work as a hub to Asia and partially to North America.

5.8 Benchmarking

In this chapter the airports are benchmarked by six attributes. There are two attributes that measure airport's connectivity in the network: connectivity from Pulkovo and airport's connectivity to continent in question. There are four competitive fitness attributes: flight prices from Pulkovo, flight time from Pulkovo, flight prices to continent's destinations and flight times to continent's destinations. Flight prices are the average of December 2015 flight prices for each route. Flight times and prices were gathered from Google Flights.

5.8.1 Europe

The results for Europe are presented in table 10.

Table 10: Connectivity, flight times and prices to Europe's destinations.

	Helsinki	**Arlanda**	**Frankfurt**
Connectivity to Pulkovo	2.	3.	**1.**
Flight prices from Pulkovo	**110 €**	309€	287€
Flight time from Pulkovo	**1h 10min**	1h 30min	3h
Connectivity to Europe	3.	2.	**1.**
Flight prices to Europe	-	BEG: 273€ PMI: 241€	BEG: **161€** ZWS: **22€** BLQ: **348€** PMI **213€** LYS: **361€** FLR: **311€**
Flight time to Europe	-	BEG: **2h 35min** PMI: **3h 40min**	BEG: 1h 50min ZWS: **40min** BLQ: **1h 20min** PMI: **2h 10min** LYS: **1h 15min** FLR: **1h 25 min**

As it is presented in table 10, Frankfurt has the best connectivity to Pulkovo. It operates the most daily flights, followed by Helsinki airport and the last one is Arlanda airport, which has only few monthly direct connections from Pulkovo. Helsinki airport can be left out from the competition as hub to Europe, because it does not serve any of the most popular indirect destinations from Pulkovo. Frankfurt has the best connectivity to destinations in Europe and it is also the cheapest option for every destination. Arlanda can only compete in two destinations by flight time. It has the fastest flight times to Belgrad and the flight duration is the same to Palma de Mallorca despite which one of the two airports is used. Even though it would be slightly faster to travel to Belgrad through Arlanda the poor connectivity between Pulkovo and Arlanda makes the route possible only occasionally. That is why Frankfurt airport is dominant airport when measured by connectivity, flight times and flight prices to every destination in Europe.

5.8.2 North America

The results for North America are presented in table 11.

Table 11: Connectivity, flight times and prices to Europe's destinations.

	Helsinki	**Arlanda**	**Frankfurt**	**Paris**
Connectivity to Pulkovo	3.	4.	**1.**	2.
Flight prices from Pulkovo	**110 €**	309€	287€	233€
Flight time from Pulkovo	**1h 10min**	1h 30min	3h	3h 35min
Connectivity to North America	4.	3.	2.	**1.**
Flight prices to North America	JFK: 2086€ MIA: **1626€**	JFK: **305€** EWR: **1181€** LAX: **1302€ (**served after 14.3.2016)	JFK: 654€ EWR: 3247€ LAX: 3472€ MIA: 3370€ SFO: 3472€ IAD: 3276€ BOS: 3247€	JFK: 1510€ EWR: 2665€ LAX: **3367€** MIA: 1795€ SFO: **3413€** IAD: **2792€** BOS: **2875€**
Flight time to North America	JFK: **8h 45min** MIA: 11h 10min	JFK: 8h 35min EWR: **8h 55min** LAX: **11h 25min (**served after 14.3.2016)	JFK: 9h 00min EWR: 8h 55min LAX: 11h 40min MIA: **10h 30 min** SFO: **11h 30 min** IAD: **9h 10 min** BOS: **8h 25min**	JFK:8h 40min EWR: 8h 40min LAX: 11h 45min MIA: 10h 05 min SFO: 11h 25 min IAD: 8h 55 min BOS: 8h 15min

Frankfurt has the best connectivity from Pulkovo, Paris being the second best, Helsinki airport third and Arlanda the fourth best. Paris has the most connections to North America, Frankfurt the second most, Arlanda third most and Helsinki airport has fourth most connections to North America.

Helsinki airport has two destinations that have competitive fitness attributes: time wisely connection to New York and price wisely the connection to Miami. The route to New York JFK from Pulkovo is the fastest one in the group. The connecting flight from Pulkovo also is well connected to the New York flight and it is the most suitable choice to travel to New York time wisely. Arlanda and Frankfurt offer cheaper options for the same route, but they take longer time. Especially Norwegian that is operating flights from Arlanda to New York offers exceptionally low prices. But Arlanda's problem is again the poor connectivity from Pulkovo. The connection to Miami from Pulkovo via Helsinki is the cheapest one in the group. It is also time wisely competitive with other airports. The only problem with this route is that there are no feeder connections from Pulkovo that would serve the flight to Miami.

Arlanda offers the cheapest flights to New York JFK and EWR and to Los Angeles (Route to Los Angeles starts 14.3.2016). It also offers the fastest routes to New York EWR and to Los Angeles. These routes are attractive only few times per month, when there are direct flights from Pulkovo to Arlanda.

Paris and Frankfurt are almost even on every route, when they are measured by time and price. Frankfurt is only cheaper to JFK, but it is faster on every route. On the other hand, Paris is cheaper on every other route than to JFK, but it is slightly slower than Frankfurt on every route. So the choice between Paris and Frankfurt is determined which attribute is more appreciated, time or price.

5.8.3 Asia

The results for Asia are presented in table 12.

Table 12: Connectivity, flight times and prices to Europe's destinations.

	Helsinki	**Arlanda**	**Domodedovo**	**Sheremetyevo**	**Dubai**
Connectivity to Pulkovo	3.	4.	**1.**	2.	5.
Flight prices from Pulkovo	110 €	309€	**24€**	40€	-
Flight time from Pulkovo	**1h 10min**	1h 30min	1h 35min	1h 15min	-
Connectivity to Asia	1.	4.	3.	2.	-
Flight prices to Asia	PVG: 1167€ DEL: 696€ TYO: 1803€ HKG: 1748€ SGN: 1108€ SIN: 1796€	HKG:1168€	DEL: 476€ TYO:611€ SGN: 450€ SIN: **536 €**	**PVG:293€** DEL: **336€** TYO: **409€** HKG:**324€** SGN: **437€**	DEL:193€ HKG:4174€ SIN: 670€
Flight times to Asia	PVG:9h 05min DEL:6h 45min TYO: 9h 40min HKG:9h 50min SGN:10h 50min SIN: 11h 35min	HKG:10h 20min	DEL: **5h 25min** TYO: **9h 35min** SGN: 9h 40min SIN: 10h 30min	PVG: **8h 45min** DEL: 6h 00min TYO: 9h 40min HKG:9h 20min SGN: **9h 35min**	DEL: 3h 05min HKG: 7h 00min SIN: 7h 10min

Domodedovo and Sheremetyevo have best connectivity from Pulkovo, Helsinki has the third best and Arlanda the fourth best. Direct flights to Dubai from Pulkovo seem to be terminated, therefore Dubai can be left out as a hub to Asia.

Helsinki airport has competitive advantage for Asia's destinations on connectivity level. It offers the most days and flights where to choose. So passengers are not as day dependent as traveling from Domodedovo or Sheremetyevo. The route Pulkovo-Helsinki-Asia's destinations is also competitive in every route when measured in time. Inconvenience that increases travel time is that connecting flights from Pulkovo are not optimally connected to departures to Asia. This fact moves the time attribute more to Domodedovo's and Sheremetyevo's sides. Helsinki airport is more expensive to use on every route when compared to Domodedovo and to Sheremetyevo.

Domodedovo and Sheremetyevo are somewhat even when compared by time and price. Sheremetyevo has more connections to Asia than Domodedovo and it is also cheaper than

Domodedovo but not significantly. Sheremetyevo can be said to be slightly more attractive than Domodedovo due to better connectivity and cheaper prices.

6. AIRLINE COMPETITION

Competition between airlines is fierce and the current situation is being described as a "playoffs of air traffic". (Kaartinen 2013) Biggest reasons for the situation are deregulation, which led to free competition and the Internet, which allows transparent comparison between airlines and prices to customers (Starkie 2012, p. 40). In past years, many airlines have gone into bankruptcy, and the remaining ones are constantly looking for cost-effiency in their operations and new partnerships. Inside the industry is being talked about a trend of consolidation, where different operators merge into bigger units through acquisitions and mergers. (Kaartinen 2013) Even though this is happening in the industry, markets in Europe are still scattered if compared to USA's internal markets (Airbus 2012, p. 83)

At the moment, in the industry is working three kinds of airlines: full service carriers, low-cost carriers and hybrid airlines. In the past, the full service carriers have been strong but now LCCs are posing a significant threat. Low-cost carriers and full service carriers have a different kind of strategies and network types. This determines their ability to compete in specific markets. Usually, FSCs have been strong on long-haul markets and LCCs are gaining footstep in short-haul markets. This has led to a point where full service carriers need to review and adjust their short-haul market strategy. (Pels 2008)

The network airlines have reacted to growing competition by creating lower-cost subsidiaries, which are called airlines-within-airlines (AWAs). Competitive responses have also included consolidation through mergers and acquisitions into bigger alliances, in-crease in fleet commonality, elimination of unprofitable operations and fare reductions as a temporary competitive weapon. (Merkert & Morell 2012; Merkert & Hensher 2011; Gillen & Gados 2008)

6.1 Alliances

Carriers have been creating cooperative arrangements in order to generate greater revenues, to reduce unit costs from economies of size and to minimize and share risks outside of their domestic markets. Alliances can be characterized into different forms: tactical or strategic alliances. (Tugores-Garcia 2012, p. 15)

Tactical alliances, which are also called marketing or commercial airlines, consist of bilateral agreements between airlines. This how, airlines can increase their origin-destination pairs by gaining access to other airline's network. There are three different kinds of tactical alliances: interlines, code sharing and joint ventures. Interlines include transfer of passengers and cargo from one airline to another on the passenger's route. Each airline is identified as their own and the passenger is charged with a single fare. In code sharing,

carriers share their capacity on a given flight, which has a code for each of the airlines involved in the agreement. This is the most widely used form of alliance in the airline industry. (Tugores-Garcia 2012, p. 15) In joint venture, carriers share the revenues that were generated by the passenger. It does not matter which airline operates the route, and airlines set schedules and prices together. (Tugores-Garcia 2012, p. 16)

Strategic alliances are bilateral or multilateral agreements, where airlines share similar business objective and they coordinate their services to achieve their goals. Airlines, for example, use common brand, similar uniforms and aircrafts to identify as part of the alliance. Exclusive membership, joint marketing entity, coordinated reservations, sales and inventory management, frequent flyer reciprocity and seamless connections are key elements of current strategic alliances. (Tugores-Garcia 2012, p. 16)

There are three competing strategic international alliances in the industry: Star Alliance, oneworld and SkyTeam. In each alliance, participants decide with which airlines they use code share agreements and which routes are included into the contract. Even though alliance members cooperate on many aspects, they may still remain as competitors with each other. (Tugores-Garcia 2012, p. 16) In table 13, is presented figures from the three main alliances.

Table 13: Figures of the three major alliances

	Star Alliance Founded 1997 28 Member airlines	SkyTeam Founded 2000 20 Member airlines	oneworld Founded 1999 15 Member airlines
Passengers (million)	641,1	602,0	512,8
Countries	192	179	154
Destinations	1330	1057	1015
Fleet size	4657	3054	3428
Revenue (billion US)	179,05 billion		143,04
Daily departures	Over 18500	16 270	14 296
Lounges	Over 1000	636	650

6.1.1 Oneworld

There are four airlines that are part of Oneworld alliance, operating from the Pulkovo airport. Finnair, which operates between Helsinki and St. Petersburg, British Airways, which offers flights between Pulkovo and Heathrow and Russian S7 airlines and Iberia Express that offers seasonal flights between St. Petersburg and Madrid.

The flights of the Oneworld alliance airlines between Pulkovo and selected hubs and between hubs and identified potential destinations are presented in figure 22.

Figure 22: Routes of the Oneworld alliance

As one can see from the picture, Asian destinations are well covered by Oneworld alliance airlines. All of the destinations, Ho Chi Minh City excluded, are served by scheduled flights. Helsinki and Finnair are the most active towards Asia by offering scheduled flights to four destinations. From Moscow is on route between Domodedovo and Tokyo, which is operated by Japan Airlines. From Dubai there are connections to Singapore and Hong Kong and Emirates and Qantas operate the flights in co-operation.

To North America, Oneworld's connections go through Helsinki-Vantaa airport and Paris Charles de Gaulle. Finnair flies to New York and Miami from Helsinki-Vantaa and American flies to New York and Miami from Paris Charles de Gaulle. Finnair, Iberia and British Airways are also selling tickets to American's flights. AirBerlin is the only Oneworld alliance airline that is operating flights to European destinations. Its scheduled destination is between Frankfurt am Main and Palma de Mallorca.

6.1.2 Star Alliance

There are eight Star Alliance airlines operating at Pulkovo airport: Aegean Airlines, Austrian, Brussels Airlines, LOT Polish Airlines, Lufthansa, Scandinavian Airlines, SWISS and Turkish Airlines. Lufthansa and Scandinavian Airlines are the most active with 28 and 11 weekly departures respectively. Star Alliance airlines are offering direct flights to:

Stockholm, Copenhagen, Brussels, Frankfurt, Warsaw, Munich, Zurich, Geneva, Vienna, Thessaloniki, Athens, Irakleion, Rhodes and Istanbul.

The flights of the Star Alliance airlines between Pulkovo and selected hubs and between hub and identified potential destinations are presented in figure 23.

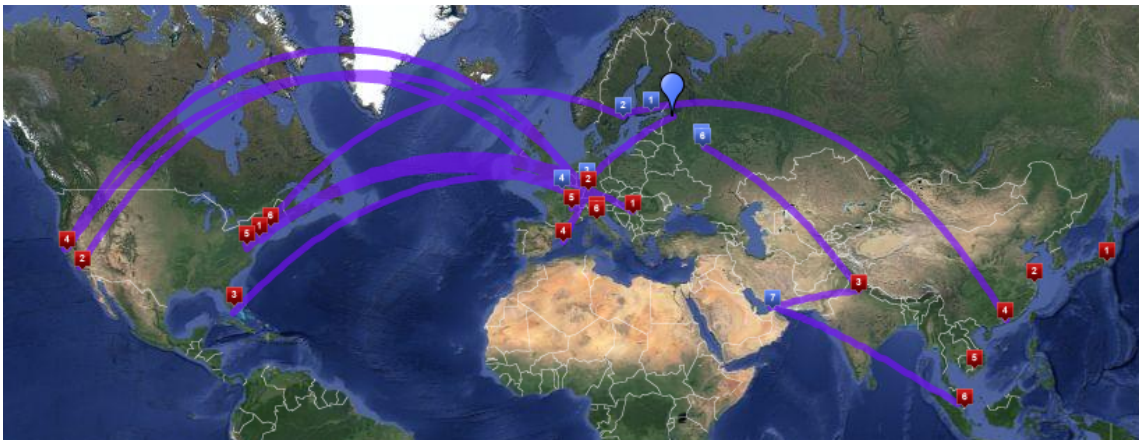

Figure 23: Routes of the Star Alliance

As is presented in picture 23, Star Alliance's routes are focused to North America and to Europe. Asia Asian destinations are served only by few regular flights. Frankfurt am Main is a main hub for the Star Alliance and there are good connections between Pulkovo and Frankfurt due to strong presence of Lufthansa in St. Petersburg.

From Frankfurt, Lufthansa is naturally the strongest operator, offering several daily flights to North American destinations in co-operation with United. Lufthansa is also offering great variety of flights to Europe's destinations from Frankfurt. Only expectation is Palma de Mallorca, which seems to be seasonal destination.

From Paris there are three connections to North America: to New York, Washington and to San Francisco. Lufthansa and United operate all of the connections in co-operation. SAS is offering flights from Stockholm Arlanda to New York.

To Asia, SAS is offering flights from Stockholm to Hong Kong, Air India from Moscow Domodedovo and from Dubai to Delhi and Singapore airlines from Dubai to Singapore.

6.1.3 SkyTeam

There are seven airlines operating from Pulkovo airport: Aeroflot, Air France, Alitalia, China Southern, Czech Airlines, KLM and Korean Air. All of the airlines are operating to destinations in their home country. Only Aeroflot is offering several cities from Pulkovo, but connections between St. Petersburg and Moscow is their most active origin-destination pair.

The flights of the SkyTeam alliance airlines between Pulkovo and selected hubs and between hub and identified potential destinations are presented in figure 24.

Figure 24: Routes of the SkyTeam alliance

As is shown in picture 24, SkyTeam routes are going through Paris and Moscow. Both Asian and North American destinations are served but North America is stronger.

From Paris, all the North American destinations are served. Air France and Delta are operating all the connections in co-operation. Delta, KLM and Air France are also flying in co-operation from Frankfurt am Main to New York.

From Moscow Sheremetyevo, Aeroflot is offering flights to Asia. It flys to Tokio, Shanghai, Delhi and to Hong Kong. Most of the Aeroflot's operations are focused to Moscow and St. Petersburg is not their main hub.

6.2 Airlines-Within-Airlines

Full service carriers have gained productivity improvements over the past years, which has allowed them to maintain majority of market shares in most markets, especially in long-distance routes. Still many of the carriers have been forced to reduce their operating costs in order to compete at the low end of the fare spectrum. That is why several full service carriers have created a low-cost, no frills division in order to compete with LCCs in a certain route or a market. This strategy started in 1990s, and it is called an airlines-within-airlines (or AWAs or AinA). The strategy can be seen, as an expansion of a full service carrier in order to create a low-cost subsidiary airline to compete with a low-cost carrier. (Homsombat et al. 2014) Graham & Vowles (2006) state that AWAs provide the following advantages to full service carriers:

- Forcing down costs (especially labor costs)
- The low-cost subsidiary's service might work as a form of market segmentation within a network expansion
- It can be used as a barrier for entry for other LCCs

- Could serve as a direct response to LCCs already working in the market

When creating AWAs, Pilling (2004) suggests there are three different options:

- Establishing separate brand
- Maintaining some links and coordination between the new brand and FSC
- Extending the mainline brand to encompass the low-cost segment

The first two options have been the most popular ones in practice.

The first airline-within-airlines were introduced in North America and in Europe, but they have been largely unsuccessful and many of them have been shut down quickly after start (Homsombat et al. 2014). In the past few years LCCs have been moving strongly to east because of deregulation, growing economy and increase in demand in the area (Pearson & Merkert 2014). That is why number of LCSs has been created in to Asia-Pacific region and some of them have achieved good financial returns and growth in traffic.

So why some of the AWAs have been successful and some of them have failed? Pearson & Merkert (2014) studied AWAs that have succeeded and failed and came up to a conclusion that the biggest reasons were:

- Ill-defined strategies and the need for decisive leadership
- Late market entrance and the need to achieve market dominance
- Excessive management control from parent and insufficient dissimilarity from parent
- Higher costs and less efficiency than LCC competitors

Based on Pearson and Merkerts' studies, many of the AWAs seemed to be created with a minimal consideration of competition and their strategic position. It should be clear why exactly the AWAs are being created and the strategic approach should be based on a research.

Many of the AWAs are created after the LCCs, with which they are competing. Late market entrance means that AWAs are often in disadvantage and they cannot benefit from the first-mover advantage. In late entrance it may be difficult to stand out from the competitors and that how appeal to passengers and thereby making it difficult to gain traffic and revenue. That is why, it is necessary that full service carriers think proactively instead of reactively when it comes to establishing the AWA. (Person & Merkert 2014)

Many of the AWAs have many sharing functions (commercial, financial or operational) with the parent carrier. Sharing management can be problematic, because management of full service carrier and AWA need two different types of mindsets. Also in many cases there has been excessive control from the parent company, which kills creativity, reduces

the ability to adapt as required to internal and external occurrences and lengthens decision-making. All of these consequences from excessive control are totally opposite to leanness, decisiveness and flexibility, which are the major features of successful LCCs and AWAs. (Person & Merkert 2014)

Many of the AWAs have higher costs and less efficiency than their LCC competitors. This originates from the operating environment and market maturity, where AWAs are trying to differentiate more with a quality than their non-AWA LCC competitors. Another factor is that, the management of AWA does not often own authentic low-cost mindset and they are not trying to remove all superfluous costs. (Person & Merkert 2014)

6.3 Arabian gulf carriers

In the past few years Middle Eastern airlines have been changing the dynamics of international aviation. Such airlines as Emirates, Qatar Airways and Etihad Airways are new global challengers and they have altered the way traffic flows are being routed. (O'Connell 2011)

Based on estimations it is stated that around 4,5 billion people are living within an 8-hour flight of the Middle East, which allows large part of world's population to connect through a single stop. The Middle East's carriers have been exploiting their geographical position and stealing traffic flows between traditional Asian and European hubs. (O'Connell 2011)

Emirates, Etihad Airways and Qatar Airways are the fastest growing full service carriers in the world. Emirates is the biggest one and Qatar Airways and Etihad Airways are combined 70% of Emirates' size. O'Connell (2011) states that the success of Arabian Gulf carriers is based on three main attributes:

- Moving sixth freedom traffic through their hubs
- High quality in-flight products
- Brand awareness

Arabian Gulf carriers have good sixth freedom aviation rights with Asian and European countries. The right allows airlines to operate between two different countries via one's own country. This how airlines from Middle East are allowed to transfer passengers for example from Asia to Europe through one single point in Middle East. For example Emirate's has 22 gateways to and from Europe, which includes also many secondary airports. This gives the competitive advantage to serve also customers who want to travel to secondary airports. (O'Connell 2011)

Often full service carriers use hub and spoke networks to connect short-haul traffic into long-haul traffic, but Arabian Gulf carriers mainly concentrate on connecting long-haul traffic to long-haul traffic via their hubs in Middle East (O'Connell 2011). Franke (2004)

states that customers are more acceptable to transferring flights on continental trips and airlines that use intercontinental hub and spoke operations are more profitable.

The fleets are new in major Middle East airlines. New airplanes have superior in-flight entertainment systems, meals and amenities. These factors increase passenger satisfaction and brand image. The new fleet also decreases fuel costs, which allows increase in operating margin. (Lohmann et al. 2009)

The Arabian Gulf carriers, especially Emirates, are investing in developing and strengthening brand image. Emirates is active in sports sponsorships and it sponsors a sport depending on in its popularity and on its level of coverage. With sponsoring different teams, sports and sport events the company gains coverage in many different countries and customer groups. (O'Connell 2011)

The Arabian Gulf carriers have lower operating costs than their Asian and European competitors. The most important factors for lower operating costs are: cheap guest workers, cheaper fuel and young fleet. Ground handling, maintenance and catering are labor-intensive operations and that why produce high labor costs. Airlines from Middle East use workers from low wage countries, like Pakistan and India, which decreases the costs. Also accounting and IT may be outsourced. The fuel is also slightly cheaper due to proximity of oil production and refining facilities. The young fleet and advanced engine technology also decreases fuel consumption. (Lohmann et al. 2009) The lower fares allow airlines to offer lower prices which triggers traffic (O'Connell 2011).

6.4 Chinese airlines

China's airline markets are deregulating and it should be reviewed due the close relationships with China and Russia and developing airlines in China. China's airline industry has gone through dramatic changes in the past 20 years. The industry went from strict regulation and control to being relatively uncontrolled and loosely supervised. (Zhang & Round 2008)

The deregulation started at 1997, when airlines experienced increasing challenges from aggressive international airlines, further deregulation demands from foreign governments and a worldwide trend towards airline alliances. Customers also became more aware and demanded better services and prices. China's government removed the price discrimination on foreign passengers and allowed free ticket pricing for the whole industry. China also allowed foreign investments in airline industry. Chinese airlines noticed that stock markets were more cost-effective than bank loans in raising money to buy planes, which increased the amount of foreign ownership in Chinese airlines. The government has also eased the entry and exit from a route, which has allowed airlines to seek more profitable routes. (Zhang & Round 2008)

Due to the deregulation of the industry, in 2002 nine Chines airlines were merged in to three major airline groups. Air China, China Southwest and CNAC were merged as to Air China Group, China Southern airlines, China Northern Airlines, and China Xinjiang Airlines were merged in to China Southern Group and China Eastern Airlines, China Yunnan Airlines and China Northwest Airlines were merged in to China Eastern Group. The three big airline groups commanded 79% of the passenger market and 81% of the cargo market by the end of 2002. (Cao et al. 2015)

At the moment, there are central airlines, local airlines and private and joint airlines in China. The three big airline groups are central airlines and the government controls them. The top executives are appointed and asset management and related financial affairs are controlled by the government. Because of this, internal management of these airlines is rigid. The local government controls local airlines and they are allowed to fly domestic routes only. The private and joint airlines entered the industry ten years ago and that is why airline resources, fleet size and professionals are limited. Private and joint airlines focus on regional business and they are adopting more flexible operation mode. They often use low fares, low costs and other measurements to increase profit. (Cao et al. 2015)

Air China is part of Star Alliance and China Airlines, China Eastern Airlines and China Southern Airlines are part of SkyTeam airline alliance. They are operating international flights and gain advantages from the airline alliances. But at the moment these airlines are not efficient. Cao et al. (2015) researched the productivity efficiency of Chinese airlines and found out that the central airlines were least efficient.

In the few next years Chinese airlines can change the competitive situation in the global markets. At the moment they are rigid but they have strong support from the government and strong domestic markets where is increasing demand. This can change the flow from Russia to China. Russia and China are having close political relations and Chinese airlines could easily enter to the markets in Russia. If Chinese airlines can offer competitive prices and service levels to Russian customers, they may start using Chinese airlines when traveling to Asia. This should be taken under consideration when creating future strategies to Russian markets.

6.5 Airline choice

Many researches have studied the factors that influence airline choice. There have been varying results, which factors have the biggest influence. Air travel service quality and fare have been identified one of the most important factors. Hess et al. (2007) state that fare is the most important factor when choosing airline while Ostrowski et al. (1993) emphasizes the importance of air service quality. Also pre-bookable services, value added services and an airline image are found to be important factors (Dennett et al. 2000; Connor & Davidson 1997)

Clemes et al. (2008) found that socio-demographic factors characteristics, such as age, gender, income, occupation and marital status, have impact on experienced air travel service quality. The results show that older passengers and passengers with higher income are more satisfied are more satisfied with the service quality than younger passengers and passengers with lower incomes. The research gives the purchasing power of older and higher income passengers as an explanation for this phenomenon. Younger passengers and passengers with lower income are also more price sensitive and usually buy tickets based on the price. This may lead to different service experience each flight

Due to competitive pressure, the delivery of high-quality service has become a marketing requirement among full service carriers. Service quality is important factor when both business and leisure passengers choose their airline. (Pakdin & Aydin 2007) The crucial step in offering high quality service is to understand customer needs. When the needs are defined, the focus needs to be in how to satisfy discovered attributes.

6.6 Airline choice for people from Saint Petersburg

A questionnaire was presented to people living in St. Petersburg, to find out the most important attributes when choosing an airline. 133 people answered the questionnaire. The results are presented in figure 25.

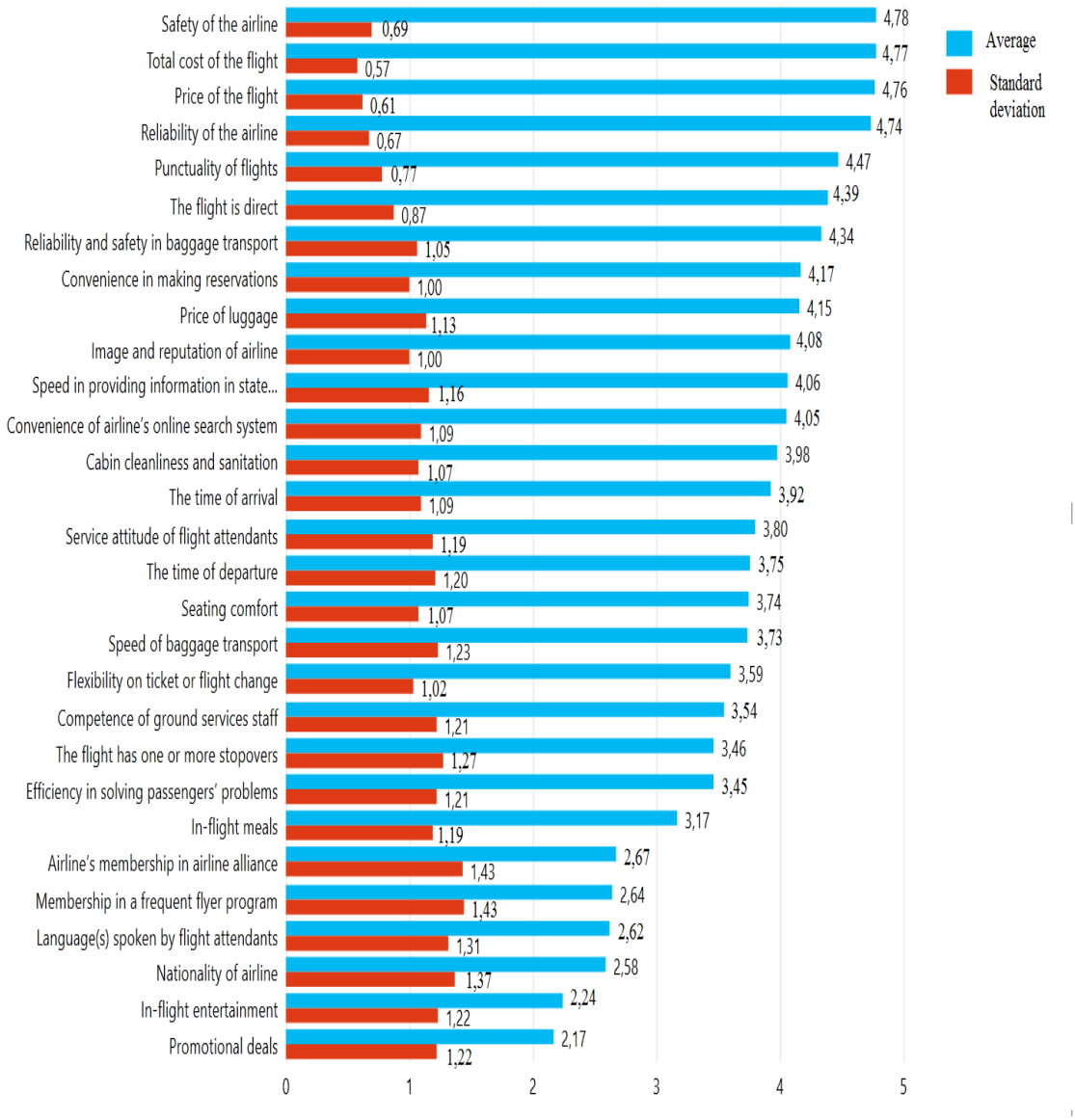

Figure 25: Appreciation of the attributes based on the questionnaire

As is shown in picture 25, there are many attributes that are highly valued when choosing an airline. Still there are four attributes that differentiate from the others. Safety of the airline, total cost of the flight, price of the flight and reliability of the airline are the most valued attributes. People from St. Petersburg seem to be fairly price sensitive, when choosing an airline. Also safety features are important, which is normal to aviation.

The least valued attributes were promotional deals, in-flight entertainment, nationality of airline and language(s) spoken by flight attendants. Especially promotional deals and in-flight entertainment stand out to be the two least valued attributes.

The price sensitivity can also be seen from the questions, which examined behavior of the people from St. Petersburg. 79% from the respondents said that price was the most important factor when choosing a flight and an airline. 7% of the respondents chose their

flight and airline based on the departure time and also based on the length of the flight. Both the time of arrival and the airport that the flight leaves gathered 4% of the answers.

From all the respondents 90% booked their flights by themselves, for 13% the company that they worked in booked the tickets, for 11% partner made the reservation, for 10% travel agency made the needed reservations and for 7% a family member made the reservation. Credit card was the most used method to buy the ticket. 87% of the respondents bought their tickets by credit card, 11% bought by cash and 2% bought their tickets with other methods.

The most used portal for searching and buying the flight was the website of an airline. 77% of the respondents used it as their source. 35% of the respondents used online travel portals, 9% used travel agencies and 8% used travel agencies websites'. 10% used other sources, but the answers mainly contained online travel portals. The most used travel portals were skyscanner, momondo, aviasales.

The attributes were also categorized. Categories and their results are presented in figure 26.

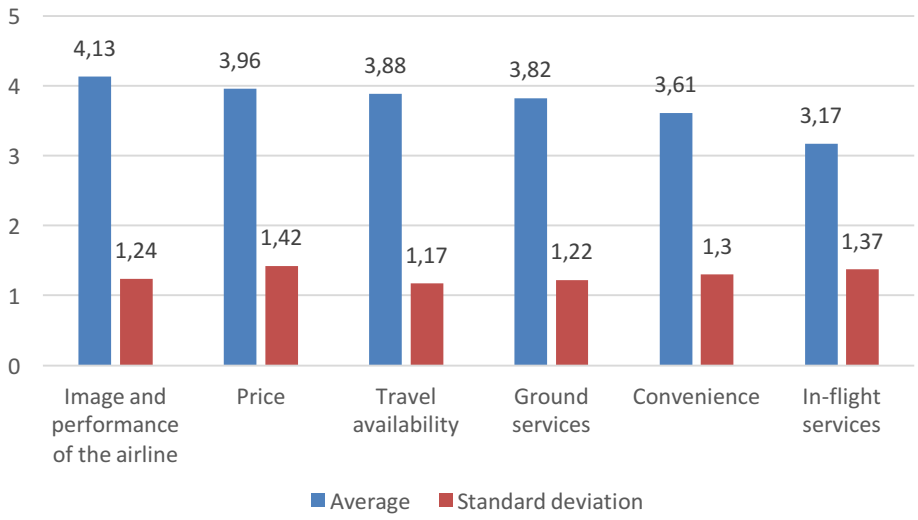

Figure 26: Categories' results for airline choice.

As is shown in figure 26, image and performance of the airline and price were the most valued categories, while in-flight services were least valued. A conclusion can be made that other factors than in-flight service levels are found more important when choosing an airline. Analyses for the categories based on demographic factors are presented in next chapters.

6.6.1 Image and performance of the airline

Image and performance of the airline were highly appreciated in all groups. All groups averaged over 4,00 in average. Most valued it was among elderly people, who averaged 4,53. The two most valued attributes were safety and reliability of the airline. Nationality of the airline was not highly valued in any other group, than in among the oldest respondents.

6.6.2 Price

Respondents with the lowest income, the ones who traveled the most and the oldest respondents valued price category the most. It is a reasonable result, that people with lower income are more price sensitive and choose their flights based on the price. Also the people who travel a lot may want to keep their expenses low, by choosing cheaper flights. The people who traveled for business and had higher income valued the price category least. They are appreciating more the easiness of the travel than price.

6.6.3 Travel availability

The people with highest income, who traveled for business and the oldest respondents valued travel availability the most. People with higher income and who are traveling for business are more willing to pay higher prices in order to get flight that suits their needs for best. That the flight is direct, was highly appreciated in every group, but people who traveled for business and had higher income also valued the time of departure and arrival.

6.6.4 Ground services

Ground services were most important for the oldest respondents and for the people who traveled the most. The reliability and safety in baggage transport and speed in providing information in state of exception were the two most valued attributes in all the other groups except among business travelers. They valued speed of baggage transport over speed in providing information in state of exception. This can be explained by their tight schedules and by the desire to minimize the time spent at the airport. The people with lowest income valued the ground services least.

6.6.5 Convenience

The people with highest income, who traveled the most, who traveled for business and the oldest respondents valued convenience category the most. Convenience in making reservation and convenience of airline’s online search system were the two most valued

attributes in every group. People with highest income and people who traveled for business valued the membership in a frequent flyer program the most. They may be traveling more often than other groups and use airlines that have frequent flyer programs.

6.6.6 In-flight services

The people who traveled the most valued in-flight services the highest. When spending time in airplanes it is logical to desire high quality in-flight services also. The most appreciated attribute in every group was cabin cleanliness and sanitation. The in-flight entertainment was found as least attractive attribute. The only group, which had higher appreciation for airline's membership in airline alliance, was the ones who traveled the most. By traveling a lot they are achieving benefits from the alliance and that is why the appreciation is reasonable.

6.7 Customer relations

Objective for customer relationship management (CRM) is to attract, maintain and enhance relationship between customers and service providers (Harrison 2000). It has been stated on principle that 20% of customers account for 80% of the sales revenue and that attracting new customers costs four to ten times more than keeping existing ones (Koch 1998; Chablo 2001). Due to intense competition in airline industry, airlines must make acquiring, retaining and strengthening the relationships with customers a high level priority in their strategic (Kalakota and Marcia 1999). The frequent flyer program is the most popular customer loyalty program in the airline industry but the relationship marketing research, which handles the airline passenger market, has not made any progress (Forgas et al. 2010).

Wang (2014) studied three kinds of relationship efforts and their impacts to customer relationships in airline industry. He divides relationship bonding tactics into three different approaches: financial bonding tactics, social bonding tactics and structural bonding tactics. The financial bonding tactic uses pricing for attracting consumers to buy the services and to increase customer loyalty. Social bonding tactics use personal ties to strengthen the buyer seller relationship. This can be done through by linking personal identities through self-disclosure, proximity, support or advice, empathy and responsiveness, feelings of affiliation, attachment or connectedness and shared experiences. Companies that address friendship or gratitude with reward incentives to customers have social implications. The rules, policies, procedures, infrastructure or agreements that provide formal structure to a relationship, the norms or routines that informally govern the interactions and the organizational systems and technologies that enable or facilitate interaction can provide psychological, legal, and physical ties that bind parties together create structural bonding tactics.

Wang (2014) discovered in his empirical study that passengers that are highly involved with the airline are more responsive to social and structural bonds than on financial bonds. On the other hand, lowly involved customers were more responsive to financial bonds. Therefore airlines should use social and structural marketing tactics for former passengers in order to improve customer relations and making financial incentives as their top priority when attracting new customers.

7. STRATEGIC AND ACTION PROPOSALS

7.1 Airport

Continued investment needs be made to develop Helsinki Airport as an international transfer hub so that it can retain its attraction and competitiveness and continue to offer national and international connections. This will require ongoing development of the airport and its services (including public transport links) and steps to ensure continued air connections among other things by means of bilateral air services agreements (especially overflight access to Russian airspace). (Liikenne- ja viestintäministeriö 2015) Also steps should be taken to ensure the necessary conditions for air freight operations so that there is at least one 24/7 airport in Finland providing round-the-clock services for air services and air freight activities. In particular, this means establishing a solid foundation for operations at Helsinki Airport, which has a key role in the air freight sector.

Measures shall be taken to promote the growth of air transport by creating and developing integrated travel chains as well as structures supporting travel chains and the public transport system as a whole (Liikenne- ja viestintäministeriö 2015). In 2015 opened a new rail connection, which connects Helsinki airport to main railroad infrastructure. Con of the connection is that there are no straight connections from Helsinki airport to other Finnish cities, and passengers need to change trains in Tikkurila station (Tekniikka & Talous 2013, s. 2). The connection is also one of the slowest in Europe. The 18 kilometer trip from Helsinki airport to center of Helsinki takes approximately 30-40 minutes. For example, trip from Stockholm Arlanda to center of Stockholm takes 20 minutes and distance being 40 kilometers. Also in London and in Oslo the travel from the airport to city center is faster, even though the airports locate further away from the center than in Helsinki. (Tekniikka Talous 2013, s. 3)

International best practices of airport ownership and operation should be reviewed to assess their transferability to Finland. (Liikenne- ja viestintäministeriö 2015) There has been a lot of studies on the subject and the most suitable form of ownership should be reviewed. There has been certain amount of studies on what are the pros and cons of publicly or privately owned airports. Oum et al. (2008) show that majority private and fully publicly owned airports are most cost efficient, while mixed public-private owned airports, particularly with the majority public, are less cost efficient. Oum et al. (2006) find similar results to Oum et al. (2008). They state that private majority ownership and wholly government owned or airport authorities are most cost efficient. Vogel (2006) offers some ideas why private owned airports may be more efficient. He examines the privatization and financial performance of European airports and finds that privatized airports are more cost efficient and this efficiency is driven by higher asset turnover, higher revenue

productivity (return on sales), higher cash flow to revenue ratio and higher operating margins; in sum, superior operating efficiency, asset utilization and capital structure. Looking at these results as well as that of others Gillen (2011), including Francis et al. (2002) and Vasigh and Gorjidooz (2006), it seems clear that privatized airports pursue profit while public airports are output maximizers.

The check-in and security control systems needs to be developed constantly. The easiness of these procedures was found as important attributes in the airport choice questionnaire. Developing technology is opening new possibilities for both tasks. Biometric automated bagdrop and new bag tags (Stuff.co.nz. 2015) are examples from new innovations, and these should be tested in Helsinki airport.

7.1.1 Allegro connection

At the moment, there is a possibility to use high-speed train Allegro as a feeder transportation between St. Petersburg and Helsinki airport. However, the connection does not offer an adequate service level to work as a real feeder and as a working addition to flights between Saint Petersburg and Helsinki. The biggest problem is that there is a change of transporter in Tikkurila train station. Passengers' need to change from Allegro to bus or to a regional train in order to get to the airport. This is especially a problem for the passengers who travel with heavy luggage.

Chiambaretto & Decker (2012) defines three different levels of integration for air-rail intermodality. The lowest level of integration is interlining agreements. In this case, an airline is allowed to sell rail tickets and there is no further integration of the products. The second level of air-rail integration is the code-share agreements, where airline and rail operator share the same train trip. Each operator will allocate its own flight/train number to the train trip. This may need integration of IT systems in order to work properly. Code-share agreements will benefit passengers in a case of exception, because passengers will know that they are offered an alternative choice if delays happen on one segment of the journey. The highest level of air-rail integration is joint-venture, which includes baggage handling and other services such as separate first and business class dining facilities on trains. This kind of integration is used between Lufthansa and Deutsche Bahn in Germany.

The most suitable option for the Allegro connection between Saint Petersburg and Helsinki would be the joint-venture. This model would reduce the burden, which originates from the change of transporter in Tikkurila. The most important sector of this integration would be the baggage handling, which would allow people with luggage also to use the Allegro connection. There should be a possibility in every train station between Saint Petersburg and Helsinki to check-in all the luggage, which would be then automatically transported to the train in Tikkurila and to the flight.

There should be also a possibility to do the check-in to the flight at train stations. People found easiness of check-in at airports as an important factor in the questionnaire. The possibility of checking in at the train station would develop this attribute. In future, there could also be a possibility to do the security control in the train. The other solution is that the security check would be done at Tikkurila train station. This idea would need a lot of development in the safety protocols and procedures, but it would move the air-rail intermodality to the next level. I think it should be investigated what kind of possibilities there are to follow this idea, and it should be tested with pilot projects. The importance of design and other attributes, which are presented in figures 6 and 7 should be noticed, when developing the Allegro connection.

7.1.2 Connection between airport and city center

Like earlier mentioned in the text, the connection between Helsinki airport and the center of Helsinki is one of the slowest in Europe if the distance between city center and airport is taken under consideration. The travel time between city center and airport was also an important attribute in the questionnaire. The new train connection between air-port and the city center takes relatively long time and the buses are overcrowded at peak hours. There could be few bus and train shifts that do not stop between on any other stops than between airport and the city center. These shifts would serve the peak hours at the airport.

The buses and trains that go to the airport should also be more easily identified. There is no different coloring or any clear visual sign where it would be easy to identify transporters that are going to the airport. The clear visual sign would increase passengers' level of comfort, when it would be clearly indicated which trains and buses serve their needs. This kind of clear visual coloring is in use for example in Moscow's' trains.

7.1.3 Increasing connections

Helsinki airport should also increase its number of connections and destinations. Reynolds-Feighan and Vega (2013) studied the development of degree centrality, closeness centrality and betweeness centrality in order to identify the patterns of connections between airports in the global, European, North American and Asian networks for the years 1997, 2002, 2007 and 2012. These attributes are used in network theory in order to define the importance of airport in the network. The degree centrality refers to the number of connections that airport shares with other airports. Closeness centrality represents the average shortest path between airport and all other airports reachable from it. Closeness centrality is also used as an indicator of accessibility of an airport. The betweeness centrality measures how many shortest paths between two airports go through the examined airport.

From Renolds-Feighan's and Vega's (2013) can be stated that Helsinki airport's relative importance has declined, especially in intra-European network, between 1997 and 2012.

This means that the airport is not important hub in its network as it used to be. But at the same time needs to be remembered that Helsinki airport has changed its strategy to serve passenger traffic between Asia and Europe. But if the airport is not easily accessible from Europe, it may decline the passenger traffic going from Europe to Asia.

If the importance of Helsinki airport is viewed from St. Petersburg's point of view it is not the most important hub in the network. For example Frankfurt, Paris and Moscow's airports have more connections from Saint Petersburg and more connecting flights to more destinations. From the eighteen most popular indirect destinations from Pulkovo, Helsinki airport serves eight of them. The airport has time as a competitive fitness attribute on every route, but the geographical position would allow the airport to open even more routes, especially to North America. New connections could be opened to Boston and to Washington if supporting passenger flows are discovered.

7.2 Airline

7.2.1 Routes

Finnair is competitive, if measured in time, in all the eight routes that it operates from Helsinki airport. The biggest competitive advantage is on a route to Miami, where Finnair and Helsinki airport was found as the cheapest and fastest way to travel from Saint Petersburg. Problem for this connection is that there are no connecting flights or trains from Saint Petersburg for this flight. There should be three daily flights from Saint Petersburg to Helsinki. The first should serve the connection to Miami, second should serve the connection to New York (which has the most passengers) and the third should serve connections to Tokyo and Shanghai (two most popular connections to Asia).

- 1st connection → Connecting to Miami
- 2nd connection → Connecting to New York
- 3rd connection → Connecting to Tokyo and Shanghai (+Ho Chi Minh City)
- Allegro connection → Hong Kong, Delhi, Singapore

At the moment connecting flights are not optimal for Miami, Tokyo or to Shanghai. Connections should also be developed with Allegro like mentioned before. Serving these four first flights optimally, brings a potential annual customer flow of 87 000 passengers. If the weekly flight amount restrictions are still valid (Lentoposti 2014), the weekly amounts should be negotiated higher. If that is not possible the development of Allegro connection becomes even more important.

New routes should be also investigated. Boston and Washington offer great geographical opportunities for Finnair. Annual passenger flow from Saint Petersburg is not strong enough alone to feed these routes and strengthening passenger flows should be identified. Opening of new routes would also increase Finnair's importance in the network.

7.2.2 Marketing

Marketing should be focused to serve following periods:

- June, July, August
- From 31st of December to 9th of January
- From 1st of May to 9th of May
- Orthodox Easter

June, July and August are the busiest months in Pulkovo and that time most passengers travel from the airport. August is also popular for family holidays. Russian New Year is spent from 31st of December to 9th of January and then people have usually ten or eleven days vacation. May holiday is also long and it lasts from 1st of May to 9th of May. The time for Orthodox Easter depends on a year.

Marketing needs to be strengthened in e-Marketing platforms that are used by Russians. Visibility and advertisement needs to be increased in search engine Yandex, which is the most used search engine by Russians. Also social medias as VKontakte and Odnoklassniki need to be exploited more efficiently. Traditional offline media can be exploited if aggressive marketing campaign is implemented.

The current situation offers opportunities and obstacles at the same time. Russian airline's accident in Egypt and Russia's war against ISIS may decrease the safety sensation towards Russian airlines. Finnair is known as a safe airline and this fact could be exploited at the current moment. Safety of the airline was found as one of the most important attributes in the questionnaire. At the same time, the low exchange rate of ruble may decrease the willingness to purchase foreign products.

One potential idea for marketing campaign is to use authorities that will increase loyalty towards the product and service. Authorities are often used in marketing in Russia. Ville Haapasalo, who is well known actor in Russia, could be the authority for Finnair.

Finnair should market the attributes that were found important in the questionnaire and in the literature. Safety, punctuality, price and services are in important part when choosing an airline. Finnair operates in high level in all of these categories. These attributes should be presented in marketing material directly and indirectly.

7.2.3 Pricing and services

As mentioned earlier in the text, highly involved customers are more responsive to social and structural bonds and lowly involved customers are more responsive to financial bonds. Also the respondents for the questionnaire were relatively price sensitive and flight price was often the most important airline choice attribute. Result of the questionnaire can be partially explained by the young age and low income of the respondents.

Fro the new customers, cheap prices are the best attraction. As is shown in chapter 5.8, Helsinki airport and Finnair are often more expensive alternative than other airports and airlines. The easiest way is to attract new customers is aggressive pricing tactics, so that the Helsinki airport and Finnair are one of the cheapest solutions for a while. When new passengers are getting involved, flight prices can be raised to normal levels gradually. If straight rebates are not an option, future discount model can be used. The pricing system could be for example: "By one two-way flight with a normal price and get 20% off from your next flight." Thaler (2015) states that people are more willing to pay full price if future discount is attached to the price. This how people may buy full priced flights, even though they are more expensive than alternatives in the market, if they feel that they can save more money in the future. This may be especially potential for the customers who buy full priced tickets for shorter and less expensive trip and who are planning longer and more expensive trip in the near future.

Social and structural bonds should be utilized in order to increase satisfaction of highly involved customers. In newsletters, customers should be mentioned by name and the personnel in the company should sign letters coming from the company. This how social cohesion can be increased. Offering high level services for highly involved customers is important. Free lounge services, priority check-in and priority security control can be used as enticement to attract customers from Saint Petersburg. Additional free services can also be used for lowly involved customers.

7.2.4 Co-operation with travel agency, travel chain solutions and change in home market thinking

11% of the questionnaire respondents bought their tickets with cash and for 10% the travel agency booked the tickets. The rate for buying ticket with cash is extremely low if compared to the number that Eventica Communications (2010) presents, which is 72%. There are few factors that may explain the difference. First of all, Eventica Communications can not be fully trusted as a source and the rate may not be correct. The information is also five years old and lot of progress has happened in purchasing methods in Russia since that. The low rate from the questionnaire can be explained by the young age of the respondents, who are more adaptive with the modern purchasing methods. The real rate for purchasing trips with cash may be somewhere between these two numbers. The same reasoning pertains to use of travel agencies.

So there is still need for travel agencies and for the option to purchase in cash in Saint Petersburg. Finnair should increase co-operation with local travel agencies in order to amplify physical presence in the city and to offer option for buying in cash. The biggest travel agencies: Intourist, Capital Tour, Russkiy Express, Lanta Tour Voyage, Coral Travel, Uzniy Krest, KMP Group and Natali Tours, should be contacted and negotiate co-operation solutions.

Two more far-reaching ideas for Finnair are travel change solutions and change in home market thinking. One future idea to differentiate from the competitors is to change the thinking ideology of airlines'. Not to only accommodate flights and services related to them but to serve the whole travel chain. Serving passenger should be done in door-to-door ideology rather than airport-to-airport ideology. Offering taxi, luggage care, public transport services and other services to passengers through their whole travel chain is the key ideology. Passengers could be able to purchase the whole travel chain from one place and all the links of travel would be connected to each other. These kinds of services and ideas could first be implemented for more wealthy passengers and after that creating affordable solution for normal passengers also.

The other more far-reaching idea is to change the home market thinking of Finnair. Saint Petersburg could be treated the same way as other parts of Finland. Political rules and regulations create some exceptions and difficulties in operations but alternative solutions can be created. This means especially developing accessibility from Saint Petersburg, focusing marketing and offering same range of services to people from St. Petersburg as for the Finnish.

7.3 Implementation schedule

The implementation schedule for strategic and action proposals are presented in table 14.

Table 14: Implemention schedule for strategic and action proposals

	Immediately	**In six months**	**In a year**	**More than a year**
Helsinki Airport	-Re-viewing ownership -Developing check-in and security control procedures	- Developing Allegro connection -Develop connections between airport and the city center	- Developing connections to other cities - Establishing new routes - Opening 24/7 cargo terminal	
Finnair	- e-marketing and marketing schedules	- Developing Allegro connection - Re-scheduling flight times	- Establishing new routes	- Change in home market thinking - Travel chain services

	- Price policy and attracting new customers	from Saint Petersburg - Co-operation with travel agencies		

The schedule is divided in to four time categories and they represent the time actions should be ready. The execution for all suggestions should start immediately. Schedule is only directional and all of the ideas can not be fully executed at the time period.

8. CONCLUSIONS AND FUTURE RESEARCH

Six potential destinations were identified from Europe, North America and Asia. Finnair and Helsinki airport served all the destinations in Asia and two in North America. All the routes from Helsinki airport were competitive. The most promising route was Saint Petersburg-Helsinki-Miami, where Helsinki airport and Finnair was the cheapest and fastest solution. On other routes Helsinki and Finnair were competitive when measured in travel time.

From network analysis Frankfurt was the strongest hub to Europe. It had the most flights to Europe's destinations and good connections with Saint Petersburg. Paris was the best hub to North America, but also Frankfurt had good connections to continent's destinations. Helsinki needs to compete with Frankfurt and Paris for passenger flows to North America. To Asia, Helsinki was the best hub, with biggest number of weekly connections.

Helsinki airport needs to re-view its ownership, develop security control and check-in procedures, develop Allegro connection, develop ground connections to other cities, develop connections between airport and the city center, establish new routes and open a 24/7 operational cargo terminal. The most important development targets from St. Petersburg's point of view are the Allegro, new routes and development of security control and check-in procedures.

Finnair should develop Allegro connection, re-schedule flight times from Saint Petersburg, increase co-operation with travel agencies in the city, establish new routes, change home market thinking and create travel chain services. Marketing should be focused to summer months and most public holidays. E-Marketing platforms, which are popular in Russia, need to be harnessed. New customers need to be attracted with cheaper prices and promotional deals. When customers are getting more involved, price sensitivity decreases and higher prices can be implemented.

Image and performance of the airline, price and travel availability were the three most important airline choice attribute categories for the people from Saint Petersburg. Finnair should promote its new and safe fleet, punctuality, direct destinations and competitive prices. Respondents were relatively price sensitive and different price-service combinations need to be implemented to attract new customers.

Airlines operating from the airport, familiarity of the airport and time were the three most important attribute categories for airport choice. Helsinki airport should attract reliable, high brand airlines to operate the airport and develop its ground connections and variety of destinations.

In the next table, is presented the research question and sub questions and what kind of answers the work gives to them.

Table 15: Research questions and answers to them

	Helsinki Airport	**Finnair**
What kind of strategic actions Finnair and Helsinki Airport must do in order to increase international outbound traffic from St. Petersburg to Europe, Asia and North America via Helsinki airline hub?	-Re-viewing ownership -Developing check-in and security control procedures - Developing Allegro connection -Develop connections between airport and the city center - Developing connections to other cities - Establishing new routes - Opening 24/7 cargo terminal	- e-marketing and marketing schedules - Price policy and attracting new customers - Developing Allegro connection - Re-scheduling flight times from Saint Petersburg - Co-operation with travel agencies - Establishing new routes - Change in home market thinking - Travel chain services
What is the current competitive situation in the market?	-Frankfurt best hub to Europe -Paris best hub to North America -Helsinki best hub to Asia	-Oneworld strongest to Asia - Star Alliance strongest to North America and to Europe -Skyteam operates both Asia and North America evenly.
Which routes are the most promising?	- Miami most promising -All eight routes have competitive fitness attributes.	- Miami most promising -All eight routes have competitive fitness attributes.

	-North America offers possibilities to open new routes	-North America offers possibilities to open new routes
What are the key attributes for attracting customers from Saint Petersburg?	-Airlines operating from the airport -Familiarity -Travel time	-Image and performance of the airline -Price -Travel availability

As it is presented in table 15, the research was able to answer all the research questions. From this we can conclude that the research was able to fill its purpose and it follows the guidelines given at the beginning.

Future research

This research can be considered wide and it represents the current competitive situation in the network well. There are still few airports that should be analyzed in order to get more precise information about the current situation. These kinds of airports are London, Amsterdam and Moscow's Vnukovo. They are not considered as important hubs from Saint Petersburg's point of view as the ones that are presented in this work. They still should be analyzed in order to give more information for better decision-making.

The real passenger flows between airports also should be analyzed. Due to lack of available data the analysis were done by schedule analysis in this work. Real passenger flows need to be investigated in order to find out the real potential for every route. The passengers may already be using routes through Helsinki and that is not taken under consideration in this work.

Preferences of people from Saint Petersburg should also be analyzed more carefully. The questionnaire reached only 133 persons and respondents were relatively homogenous. Opinions from male and from older people are needed in order to create better understanding on wanted attributes. Furthermore, people from Saint Petersburg should be divided into different kind of customer groups in order to find out preferences for every group.

This research only covers outbound traveling, but inbound traveling has also great potential. Large amounts of passengers travel every year to Saint Petersburg and the used routes need to be identified. Offering travel services to people going to Saint Petersburg gives an opportunity to increase tourism in Finland also.

All in all, this research can be considered as successful. It was able to answer to research questions and it creates clear picture of the current situation. Some parts of the work can not be considered as highly trustworthy due to lack of scientific publications and lack of solid data. With better sources, the work would have been more reliable and accurate. It still gives clear guidelines to execute strategic and action proposals.

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APPENDIX A: Airline and airport choice –questionnaire

DEMOGRAPHICS

Gender: Male or Female
Age: 30 years or younger, 31-50 years old, 51 years or older
Monthly income: 35 000 rubles or less, 35 000 – 65 000 rubles, 65 000 rubles or more
Languages spoken: Russian, English, Other
Frequency of international flights: once a year, 2-5 times a year, 6 times or more a year
Frequency of domestic flights: once a year, 2-5 times a year, 6 times or more a year
Purpose of travel: Flying for leisure, Flying for business, Visiting friends and relatives

BEHAVIOR

When choosing flight, which is the most important factor: Price, time of departure, time of arrival, flight length, airport
Who books your trips: Myself, company, partner, relative, travel agent
What is the most perceived method of purchasing the trip: cash, Credit card, other
Where do you search/choose your trips: From airline's webpage, from travel agency, from travel agency's webpage, from online travel portal, Other
Where do you buy your trips: From airline's webpage, from travel agency, from travel agency's webpage, from online travel portal, Other
Can you name the most preferred place to buy the ticket:

AIRLINE CHOICE

Which factors affect your choice of airline? 1= Not important at all, 5= Really important

	1	2	3	4	5
Efficiency in solving passengers' problems					
Competence of ground services staff					
Service attitude of flight attendants					
Speed of baggage transport					
Reliability and safety in baggage transport					
Speed in providing information in state of exception					
Safety of the airline					
Reliability of the airline					
Punctuality of flights					
Convenience of airline's online search system					
Membership in a frequent flyer program					
Convenience in making reservations					

In-flight meals					
Seating comfort					
In-flight entertainment					
Cabin cleanliness and sanitation					
Image and reputation of airline					
Nationality of airline					
Language(s) spoken by flight attendants					
Promotional deals					
Price of the flight					
Price of luggage					
Total cost of the flight					
The flight is direct					
The flight has one or more stopovers					
The time of arrival					
The time of departure					
Flexibility on ticket or flight change					
Airline's membership in airline alliance					

Categorization of the airline attributes:

Ground services (9): Efficiency in solving passengers' problems, Competence of ground services staff, Service attitude of flight attendants, Speed of baggage transport, reliability and safety in baggage transport, Speed in providing information in state of exception, Safety of the airline, Reliability of the ariline, Punctuality of flights

Convenience (3): Convenience of airline's online search system, Convenience in making reservations, Membership in a frequent flyer program, Flexibility on ticket or flight change

In-Flight services (8): In-flight meals, seating comfort, In-flight entertainment, Cabin cleanliness and sanitation, Nationality of airline, Image and reputation of airline, Language(s) spoken by attendants, Airline's membership in airline alliance

Price (3): Promotional deals, price of the flight, Price of luggage, Total cost of the flight

Travel availability (3): Direct flight, connecting flight, flight scheduling (arrival, departure)

AIRPORT CHOICE

Which airport(s) you use most often:

Which factors affect your choice of airport? 1= Not important at all, 5= Really important

	1	2	3	4	5
Availability of free parking slots					
Language used in signs and information boards					
Language(s) spoken by ground services staff					
Transport connections between airport and city center					
Travel time between home and airport					
Public transport between home and airport					
Availability and quality of food facilities					
Speed of check-in at the airport					
Speed of security control at the airport					
Direct flights served from the airport					
Walking distance inside terminal					
Availability and quality of stores					
Prices at food facilities					
Prices at stores					
Departure lounge comfort					
I have used the airport before					
Cost to travel to the airport					
Flight prices offered from the airport					
Airlines operating from the airport					

Categorization of the airport attributes:

Accessability (3): Availability of free parking slots, Transport connections between airport and city center, Public transport between home and airport

Time (3): Travel time between home and airport, Speed of security control at the airport, Speed of check-in at the airport

Services (4): Language used in signs and information boards, Language(s) spoken by ground services staff, Availability and quality of food facilities, Availability and quality of stores

Price (4): Prices at food facilities, Prices at stores, Cost to travel to the airport, Flight prices offered from the airport

Facility (2): Walking distance inside terminal, Departure lounge comfort

Airlines (1): Airlines operating from the airport

Familiarity (1): I have used the airport before